VOL. 102 • NO. 1 July 1947

ARCHITECTURAL RECORD

F.W.DODGE CORPORATION

Copyright 1947 with all rights reserved F. W. DODGE CORPORATION • Vice-President in charge of Magazine Division, H. Judd Payne • **EDITORS:** Editor-In-Chief, Kenneth Kingsley Stowell, A.I.A.; Managing Editor, Emerson Goble; Senior Associate Editor, Douglas Haskell; Associate Editors, John W. Ragsdale, James S. Graham, Jr.; Associate in South America, Edmund J. Whiting, A.I.A.; News Editor, Florence A. van Wyck • **ART DEPARTMENT:** Myron S. Hall, 3rd, Director; Peter Piening, Consultant; Sigman-Ward, Drafting • **CONSULTANTS:** Industry Relations Consultant, Thomas S. Holden; Statistical Consultant, Clyde Shute; Building Economics Consultant, Norbert Brown; Field Research Consultant, Clifford Dunnells, Jr.

POOR RELATIONS — PUBLIC, THAT IS 69
An Editorial . . . by Kenneth K. Stowell

MODERN MEXICO 70
Personal Observations, Impressions and Appraisals of Current Architecture. By Ann Binkley Horn

IDEAS BORN OF WINDS AND WEATHER 84
House for John R. Stone, Topeka, Kansas. Schweikher and Elting, Architects

MIRACLE (AND MECCA) ON 34TH STREET 90
New Headquarters for Crawford Stores, Hotel McAlpin, New York City. Kahn and Jacobs, Architects

BUILDING TYPES STUDY NO. 127 . . . RESTAURANTS AND BARS . 96

ARCHITECTURE FOR EATING AND DRINKING 96
By Herman H. Siegel

GRISON'S STEAK HOUSE 107
San Francisco, Calif. Hertzka & Knowles, Architects

NEW HORIZON ROOM, HOTEL CONTINENTAL 108
Chicago, Ill. Holabird and Root, Architects

MC ALPIN BAR AND RESTAURANT 109
New York City. Kahn and Jacobs, Architects

MADISON ROOM, MANCHESTER DEPARTMENT STORE 112
Madison, Wis. Skidmore, Owings & Merrill, Architects

RENAISSANCE AT RIKERS' 116
By Daniel Laitin, A.I.A.

ARCHITECTURAL ENGINEERING . . . Technical News and Research . . . 117

RESTAURANT LIGHTING WITH SLEIGHT-OF-HAND 117
By Thomas Smith Kelly, I.E.S.

RESTAURANT KITCHENS 119

TIME-SAVER STANDARDS 122
The Drawing of Accurate Curves. By Sterling M. Palm, Architect

PRODUCTS . . . for Better Building 124

MANUFACTURERS' LITERATURE 130

THE RECORD REPORTS . . . News from the Field 7

CONSTRUCTION COST INDEXES 27

REQUIRED READING 28

EMPLOYMENT OPPORTUNITIES 186

INDEX TO ADVERTISEMENTS 202

Architectural Record (combined with American Architect and Architecture) is published monthly by F. W. Dodge Corporation, 10 Ferry St., Concord, N. H., with Editorial and Executive Offices at 119 West 40th Street, New York, N. Y. Thomas S. Holden, Pres.; Howard J. Barringer, Vice-Pres. and Treas.; Irving W. Hadsell, Vice-Pres.; Chauncey L. Williams, Vice-Pres.; Sanford D. Stockton, Jr., Secy.; Walter F. De Saix, Asst. Treas.; Edwin H. Freed, Asst. Treas. Member Audit Bureau of Circulation and Associated Business Papers, Inc. Architectural Record is indexed in Reader's Guide, Art Index and Industrial Arts Index. Subscription rates: United States and Possessions, Canada, Cuba, Mexico, Central and South America, and Spain, $4.50 the year, $7.50 for two years, $9 for three years; elsewhere, $6.50 the year, $11.50 for two years, $15 for three years. Single copy, $1. Circulation Manager: Marshall T. Ginn. Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage. Other Dodge Services: Real Estate Record & Builders' Guide, Sweet's Files, Home Owners' Catalogs, Dodge Reports & Dodge Statistical Research Service.

7 OUT OF 8 ARCHITECTS VOTE FOR ADJUSTABLE FLUSH VALVES*

*Based upon 286 replies from an unbiased survey made among 500 architects selected at random from the distribution list of Sweet's Architectural Catalog File.

It was Watrous who first pioneered and developed the idea of making flush valves adjustable. We knew it would offer outstanding advantages. This recently completed survey shows how the overwhelming majority of architects recognize those advantages.

When the valve is adjusted to the fixture on which it is installed, maximum water savings can be obtained—enough actually in many cases to pay the cost of the valves themselves.

Maximum operating efficiency with all fixtures can also be obtained when the valve can be adjusted to their varying water requirements. Operating efficiency, further, can be maintained over the years, despite inevitable wear and changing operating conditions.

A few additional words in your specifications, such as:
"All flush valves shall have an external adjustment for length of flush,"
will bring all the above advantages.

For complete information on Watrous Flush Valves see Sweet's Catalog, or write for Catalog No. 448-A. Also ask for Bulletin No. 447 giving a summary of "Architects' Views on Flush Valve Applications."

THE IMPERIAL BRASS MFG. COMPANY
1240 West Harrison Street, Chicago 7, Illinois

Watrous Adjustable Flush Valves
BOTH DIAPHRAGM AND PISTON TYPES

THE RECORD REPORTS

Congress Faces Adjournment with some Housing Items Enacted, Some Pending • Restrictions Further Relaxed Rental Housing Volume Is Up • Production Is Higher

Congress neared its summer adjournment with some housing items enacted and some pending. There was no evident intention of writing into law the major Taft-Ellender-Wagner bill — the so-called National Housing Commission Act.

The lawmakers had approved a modified continuance of rent controls, but practical elimination of other controls, elimination of premium payments and guaranteed market plans, additional funds to complete emergency housing units, funds for the Apprentice Training Service to aid in provision of skilled workers, authorization for planning a new federal courthouse in the District of Columbia, and others. They had pending three bills on loan and insurance provisions (H.R. 2798, H.R. 2799, and H.R. 2800).

Housing Plan Pending

Pending, too, was President Truman's late-May recommendation for reorganizing the federal housing agencies. Succinctly, the President proposed a Housing and Home Finance Agency to include a Home Loan Bank Board, the Federal Housing Administration and the Public Housing Administration. He also suggested a National Housing Council on which the new agency and other federal units "having important housing functions" could be represented.

The plan calls for an administrator to head the overall agency, three members for the Home Loan Bank Board, and a commissioner each for FHA and PHA. (The Federal Savings and Loan Insurance Corporation falls under the Bank Board.)

As the reorganization plan arrived on Capitol Hill its chances for early approval were not promising. The last Congress, it will be remembered, looked with disfavor on an overall housing agency.

Permanent Bill Sought

Among measures getting attention is a Senate bill (S. 971) for $250 million for FWA grants to educational institutions where there is a shortage of facilities to take care of war veterans. The bill was actively endorsed by educators at hearings before the Senate Committee on Labor and Public Welfare.

Meanwhile, the Senate Banking and Currency Committee had good words for the broad National Housing Commission Act. "The Committee believes it is high time to look to comprehensive legislation for the solution of our housing troubles," it told the Senate in urging passage of the bill (S. 866). "We should no longer yield to those who clamor for 'temporary solutions' and insist that permanent, comprehensive measures are too late to do any good."

Restrictions Relaxed

While Congress was arguing the continuation of rent and other controls, Housing Expediter Frank R. Creedon relaxed some existing restrictions. Beginning in June, federal housing permits were no longer required for builders of homes, the 1500 sq. ft. limit was expanded to 2000, and more than one bathroom could be installed. Other actions of the Housing Expediter include (1) stepping out of the surplus property picture July 1 because of dwindling amounts of surplus housing items, and (2) transfer of rent control, under a presidential order, from the Office of Temporary Controls to the Expediter's office.

More Rental Housing Noted

The federal housing agencies drew two points of consolation out of the slowing up of housing construction. Point number one was the uptrend in the volume of rental housing planned; FHA, which gets the applications for mortgage insurance, reported that the projects were running about four to one compared with 1946. Point number two was that the number of "completions" of houses as distinct from "starts" (which have been lagging) will exceed one million if conversions, trailers and temporary units are included. Of this number 750,000 will be permanent. He tied his prediction, however, to continuation of federal controls on non-residential construction.

As to the rental projects, FHA Commissioner Raymond M. Foley advises that the average provides apartments for 39 families, three out of every four containing less than 50 units. About seven of every eight are of the walk-up type.

Production Is High

While the Administration continued its efforts to talk down prices, reports came in of building material production remaining high. In lumber, for instance, total output in the first quarter ran 20 per cent above the 1946 period, indicating a 1947 total of 36 billion board feet or more. For fabricated structural steel, shipments in the first quarter exceeded the same quarter in 1946 by 46 per cent. Clay sewer pipe was running 66 per cent higher. On the other hand, the hardware trade, reports the Commerce Department, will not be able to fill consumer needs before 1948.

The building industry pointed to factors, in addition to the increasing supply

(*Continued on page 10*)

"Are you the people who advertised for an upstairs maid?"

— Drawn for the RECORD by Alan Dunn

DOUBLE DUTY INSULITE GIVES

Double

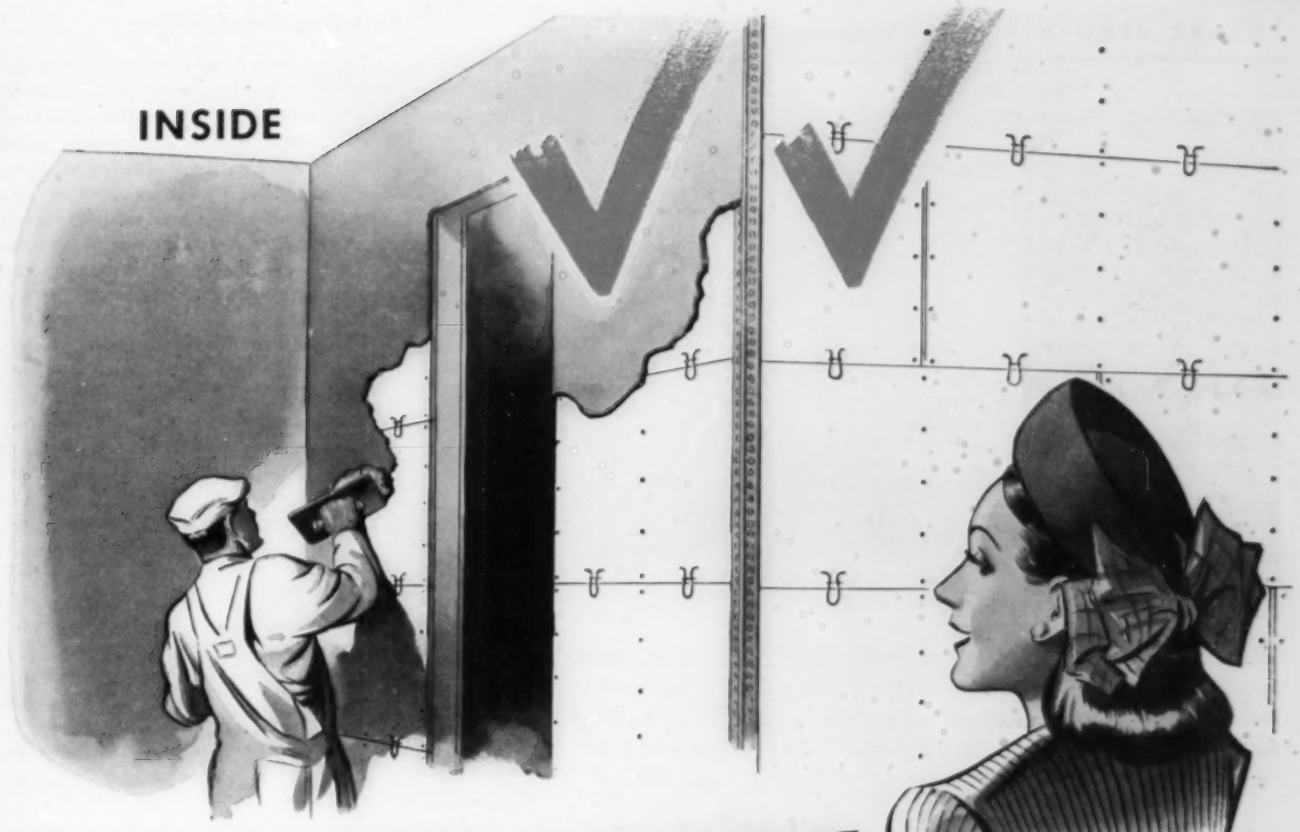
Double-duty INSULITE SHEATHING (for outside walls) does two things for the price of one:

(1st) It *Sheathes* (2nd) It *Insulates*

One material — DOUBLE usage. One application — TWO important services to help your client get double for his money.

This is smart, modern progressive construction procedure — functional and economical. It offers practical advantages over wood sheathing horizontally applied. Greater bracing strength, less labor cost, improved rigidity . . . PLUS *insulation!* Specify double-duty Insulite Sheathing — the genuine.

INSULATES AS IT BUILDS . . . .



FOR THE MONEY

Double-duty INSULITE LOK-JOINT LATH (for inside walls) does two things for the price of one:

(1st) *Plaster Base* (2nd) *Insulates*

One material — DOUBLE usage. Your client gets a *plus* value with his purchase: — plastered walls — PLUS insulation and vapor control! Two things for the price of one! Specify double-duty Insulite Lok-Joint Lath.

BUILDS AS IT INSULATES

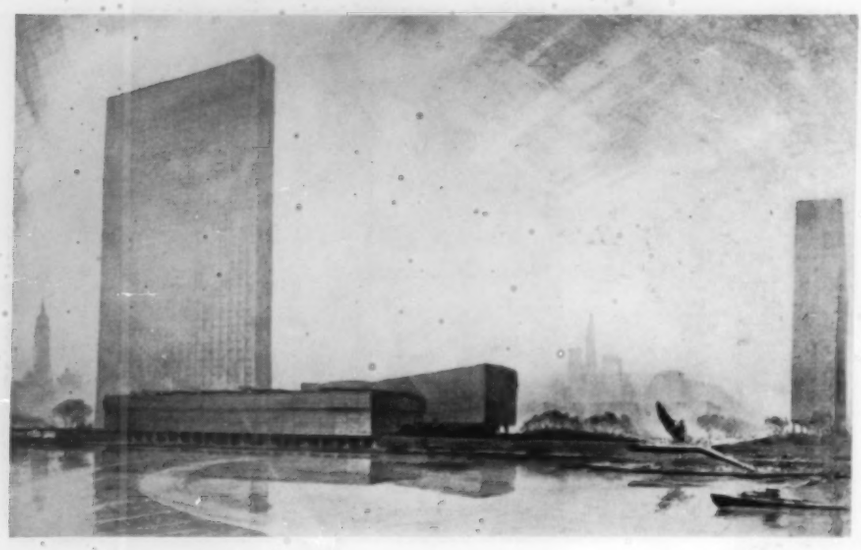
double-duty INSULITE

The GENUINE

Refer to Sweet's File, Architectural Section 10a/9

"Insulite" is a registered trade mark, U.S. Pat. Off.

INSULITE DIV. PAPER MINNEAPOLIS MINNESOTA & ONTARIO COMPANY 2 MINNESOTA



What the United Nations Headquarters may look like: schematic rendering by Hugh Ferriss illustrating the general architectural scheme developed by the Headquarters Planning Staff. At left, on southerly edge of the six-block site, is the 40-story Secretariat Building; at right is the Specialized Agencies Building; meeting area is in center. Publication of the plan brought a storm of criticism (see page 69)

of materials, already operating to lower building costs—such as keener competition, regaining of prewar efficiency, increasing productivity of labor, and cost-reducing building techniques.

Research Stressed

Research is getting increased attention. The Commerce Department's Office of Technical Services has made a grant for studies at the University of Illinois of methods of erecting industry engineered housing, the type of project developed jointly by the Producers' Council and the National Retail Lumber Dealers' Association. To determine means of increasing efficiency, six identical houses are to be constructed one after the other with an eye to eliminating waste motion and effort.

Other funds have gone to aid an industrial non-profit program in standardizing dimensions of various types of building materials. The goal is to reduce building costs and speed construction by eliminating delays resulting from "the needless multiplicity of types and sizes of wood, clay, metal and other varieties of building materials and accessories." Also under development is an inexpensive building board.

NHA, too, has a Technical Office on housing research and testing. The Forest Products Laboratory at Madison, Wis., has been collaborating with the Office in preparing a technical reference book on wood prefabrication, covering characteristics of various woods, giving data on strength of materials, wood treating, processing, machinery, etc.

Plumbing Codes Studied

Government experts have counted the number of plumbing codes in the United States, coming up with the figure of 1500 — some of them state-wide, some country-wide, some for cities or villages. What one code insists on another forbids, while a third is neutral. To officials whose job is the working out of uniform codes, this is rich and inviting territory and half a dozen agencies are prospecting it.

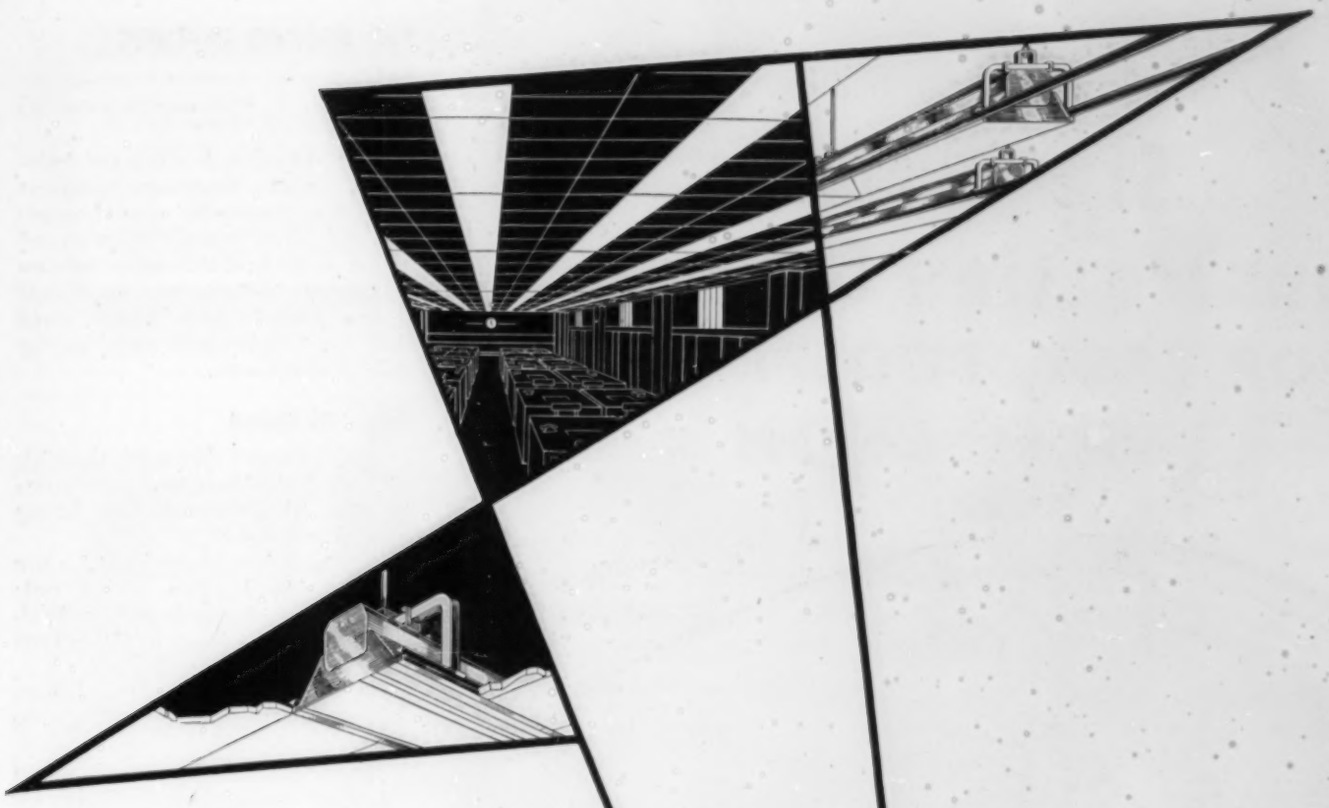
The uniform plumbing code, once it appears, will be a prelude to something more, notably to standardizing products and reducing numbers of sizes, shapes, etc., as has been done in many other industries.

At the Bureau of Standards, NHA is installing sewers, drains, stacks, etc., made of transparent plastic, whose insides will be watched and photographed. Movies will be made. The pictures will be scrutinized for scientific value and shown around among local politicians for propaganda effects, perhaps, with a sound track that observes, "This, gentlemen, is what happens to sewage."

The code idea is intended, over the

(*Continued on page 12*)

Above and below: Glen Oaks Village, a 3800-apartment rental community now under construction in the Borough of Queens, New York City, for the Gross-Morton Company. Buildings will cover only 1/5 of the 175-acre site. Benjamin Braunstein, architect



lighting with a new versatility of application . . . ceilings unlimited

You get "good lighting" from MILLER FLUORESCENT TROFFER LIGHTING SYSTEMS — you get, in addition, the opportunity to plan the lighting to form any ceiling pattern desired — CEILINGS UNLIMITED! Interiors of stores, schools, offices, factories, and public buildings are thereby modernized as well as lighted by the use of this one basic lighting system. Installation is simplified. Wiring costs are cut up to 50%, conduit and conduit fitting costs up to 80%. Supports from structural ceiling reduced 50 to 75%.

Miller lighting service, developed over 103 years' pioneering in good lighting, is all-inclusive. Its 50 and 100 FOOT CANDLERS (Continuous Wireway Fluorescent Lighting Systems) have been established as standard for general factory lighting. Miller also makes Incandescent and Mercury reflector equipment for factory and commercial application.

MILLER field engineers and distributors are conveniently located.

THE miller COMPANY

SINCE 1844

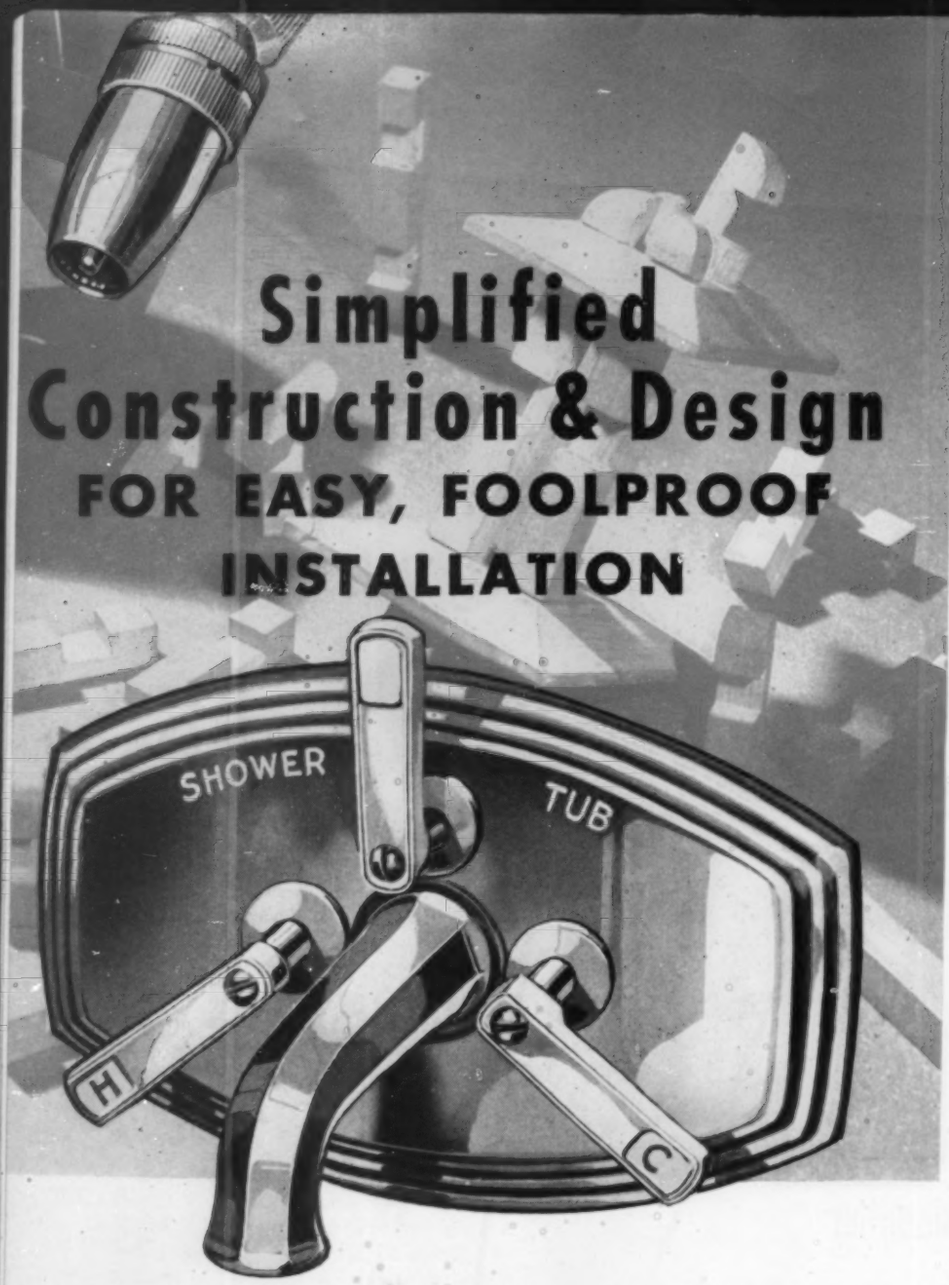
ILLUMINATING DIVISION, MERIDEN, CONNECTICUT

ILLUMINATING DIVISION: Fluorescent, Incandescent, Mercury Lighting Equipment

HEATING PRODUCTS DIVISION: Domestic Oil Burners and Liquid Fuel Devices

ROLLING MILL DIVISION: Phosphor Bronze and Brass in Sheets, Strips and Rods

Simplified Construction & Design FOR EASY, FOOLPROOF INSTALLATION



There are no puzzles to be worked out when installing Salter-Glauber Masterpiece Fixtures. For they are designed with a minimum of parts and each unit is factory assembled, tested and guaranteed to be perfect in every respect. In addition, the standardization of most working parts and incidental trim, enables us to provide unprecedented quality in volume production. Plumbers, contractors and home owners all benefit by the extras found in Salter-Glauber Masterpiece Fixtures . . . Start specifying Masterpiece quality today.

S-500—Compact Gothic Plate Diverter Bath and Shower Fixture. Cast one piece body with 2¾" center openings. Now furnished with polished chrome brass plate.

H.B. Salter MFG. CO.

MASTERPIECES IN BRASS

10 Ninth Street, Marysville, Ohio

and division THE GLAUBER BRASS MFG. CO., *Kinsman, Ohio*

THE RECORD REPORTS

(*Continued from page 10*)

long pull, to reduce building and maintenance costs. Plumbing equipment production, presumably, would be made less costly since standard materials and shapes would lend themselves to mass production. Maintenance, too, would become cheaper since dealers could store fewer replacement parts, cutting their overhead costs.

Materials Tested

Agencies report that many materials with which they have been experimenting meet high performance tests. Among these they include:

Wallboard from saw-palmetto, a tree once considered useless and a pest; laminated flooring made of waste hardwood pieces, developed by TVA; kraft paper and resin wall panels, etc.

There are also all-aluminum houses, light weight concrete and others some day to be exhibited.

The agencies say that these have met "rigid performance" standards, but the physicists and chemists who developed the tests are more modest than the publicity writers. After all, they point out, the tests are artificial and must themselves be tested. A typical test seeks to reproduce the conditions of life — with its rain, wind, extremes of temperature. The piece of equipment is then exposed to all the contrived lightning, hail, snow, sleet and sunshine. But physicists point out that there may always be some condition which they have overlooked in framing their tests and that the final test still will be that of actual use — say for five or ten years.

Confer on City Growth

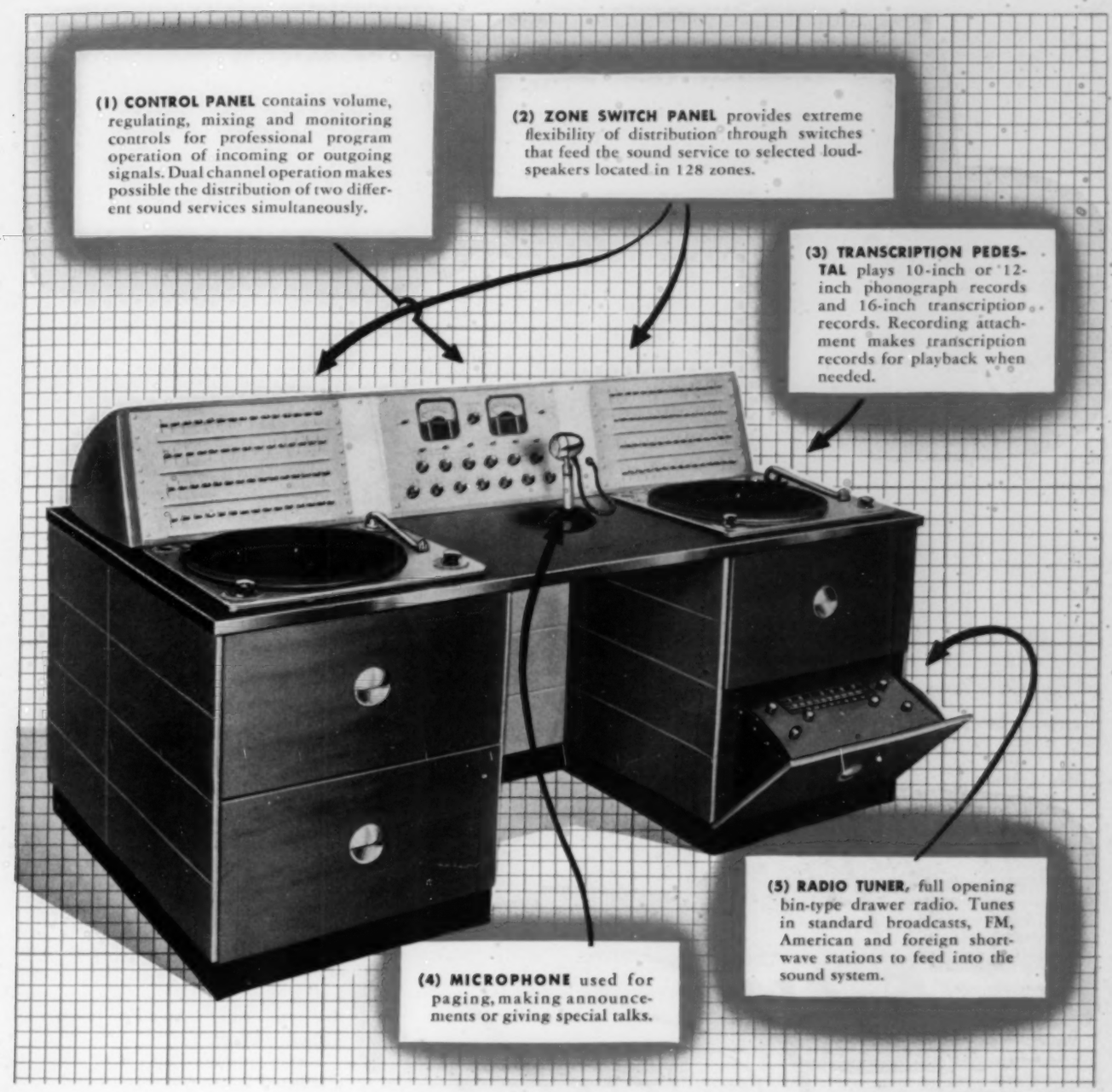
A joint conference on problems of city growth is planned in Washington for September 11–12 by the Urban Land Institute, the Automotive Safety Foundation, the American Transit Association and the U. S. Chamber of Commerce.

To be considered are various angles such as city planning as a tool; making the most of existing facilities in avoidance of traffic congestion and development of freeways and expressways; parking problems; slum clearance and offsetting of blight; relation of downtown business sections to the growing trend toward decentralization and suburban development.

Business Surveyed

The Survey on Business Expectations and Governmental Policies made for the Congressional Joint Committee on the Economic Report by Dun & Bradstreet,

(*Continued on page 14*)


(1) CONTROL PANEL contains volume, regulating, mixing and monitoring controls for professional program operation of incoming or outgoing signals. Dual channel operation makes possible the distribution of two different sound services simultaneously.
(2) ZONE SWITCH PANEL provides extreme flexibility of distribution through switches that feed the sound service to selected loudspeakers located in 128 zones.
(3) TRANSCRIPTION PEDESTAL plays 10-inch or 12-inch phonograph records and 16-inch transcription records. Recording attachment makes transcription records for playback when needed.
(4) MICROPHONE used for paging, making announcements or giving special talks.
(5) RADIO TUNER, full opening bin-type drawer radio. Tunes in standard broadcasts, FM, American and foreign short-wave stations to feed into the sound system.

It's EASY to plan a sound system with RCA's *Unit-Built* equipment

Now you can easily plan an efficient sound system for any project.

RCA's new Sound Systems are unit-built of standardized frames and panels matched to make up various combinations of basic units. These distinctly styled basic units assemble into master sound control consoles . . . provide the desired requirements of sound services.

RCA unit-built sound installations range from a simple paging system to complete facilities for the distribution of radio programs, recordings and paging. The same basic unit design is employed in all cases providing "custom-built" consoles within the price range of regular production equipment.

SPECIAL ARCHITECTURAL SERVICE—RCA's architects consulting bureau will be glad to work with you on sound system jobs of every kind. Write to Dept. 10-G.

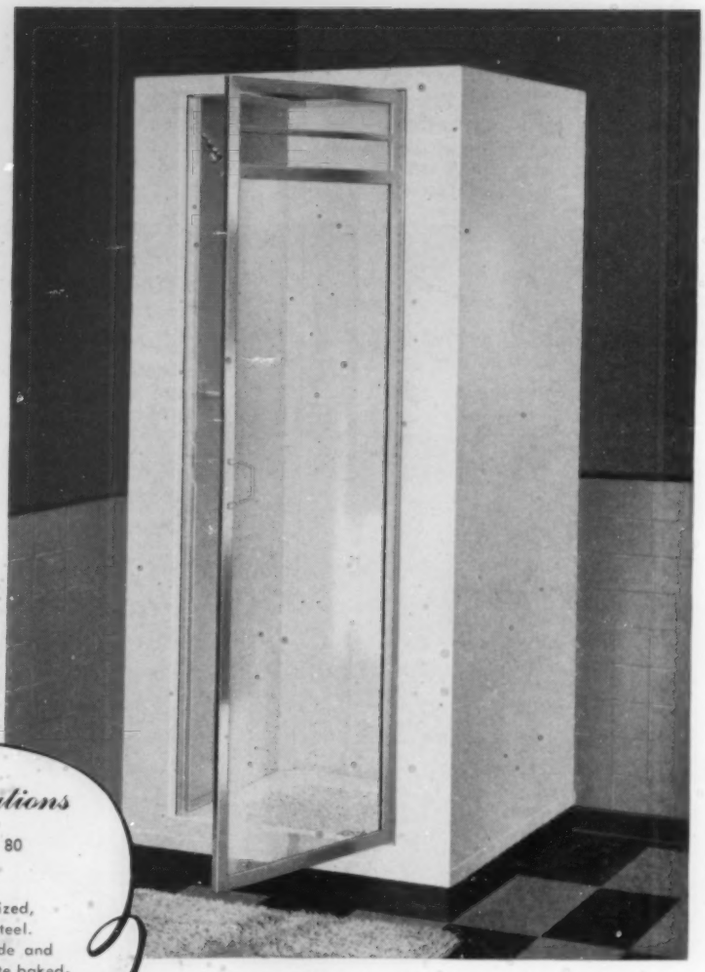
For further information
SEE SWEET'S FILE, ARCHITECTURAL
RCA's 8-page catalog in Sweet's, places information on Sound Systems equipment at your finger tips.

SOUND SYSTEMS

RADIO CORPORATION of AMERICA

ENGINEERING PRODUCTS DEPARTMENT, CAMDEN, N.J.

In Canada: RCA VICTOR Company Limited, Montreal



Specifications

SIZE—32 x 32 x 80
36 x 36 x 80

WALLS—Bonderized, galvanized steel. Finished inside and out with white baked-on synthetic enamel.

RECEPTOR—Semi-flat type Pre-cast terrazzo or Artex, non-slip, leakproof, non-absorbent. Brass drain for 2" waste connection cast integral with receptor

VALVES—Individual compression valves with arm and shower head.

FIAT *Cadet*

...with Zephyr Door A shower bath, representative of the best quality in cabinet construction available to the plumbing trade today. Recommended for installation in the better class of homes, institutions, hotels, and clubs. The Fiat Cadet Shower and Zephyr Door are products of fine workmanship and design, in harmony with modern bathroom architecture.

In Canada—Fiat showers are made in Canada by The Porcelain and Metal Products, Ltd., Orillia, Ontario

Fiat *Metal Manufacturing Company*

Chicago 13, Illinois

Long Island City 1, N. Y. Los Angeles 33, California

THE RECORD REPORTS

(*Continued from page 12*)

Inc., brought out some interesting reactions on federal aid to housing.

To quote the summary of findings:

"Majorities of most groups of respondents favored reduction of federal encouragement of housing construction, primarily because they felt that government should not interfere in such an essentially private type of business, and because they felt that private construction would be encouraged if federal aid to housing were reduced.

"On the other hand, most of the labor leaders and the economists stated that federal aid to housing should be increased, both to relieve the housing shortage and because increased housing activity would help sustain a high level of employment."

Opinions were forthcoming also on rent control. The summary points out as follows:

"Most of the groups of respondents showed substantial majorities in favor of maintaining and raising rent ceilings. This policy was advocated by most of the business groups, as well as by economists and newspaper editors. Their general feeling was that this would help the housing situation by encouraging expenditures by landlords in addition to encouraging new building in shortage areas. Many of the respondents combined the above stated recommendation with advocacy of elimination of rent ceilings on new construction only.

"In one of the business groups, a majority of respondents advocated complete elimination of rent ceilings. On the other hand, most of the labor leaders and 42 per cent of the farmers stated that rent ceilings should be maintained without change."

Survey questionnaires were mailed to a selected list of 908 names and questionnaires completed in time for inclusion in the report totaled 583 or 64 per cent. Groups contacted included manufacturers, mining, construction, transportation, communications and utilities, service industries, finance and insurance, wholesalers and retailers, farmers, labor leaders, economists and newspaper editors.

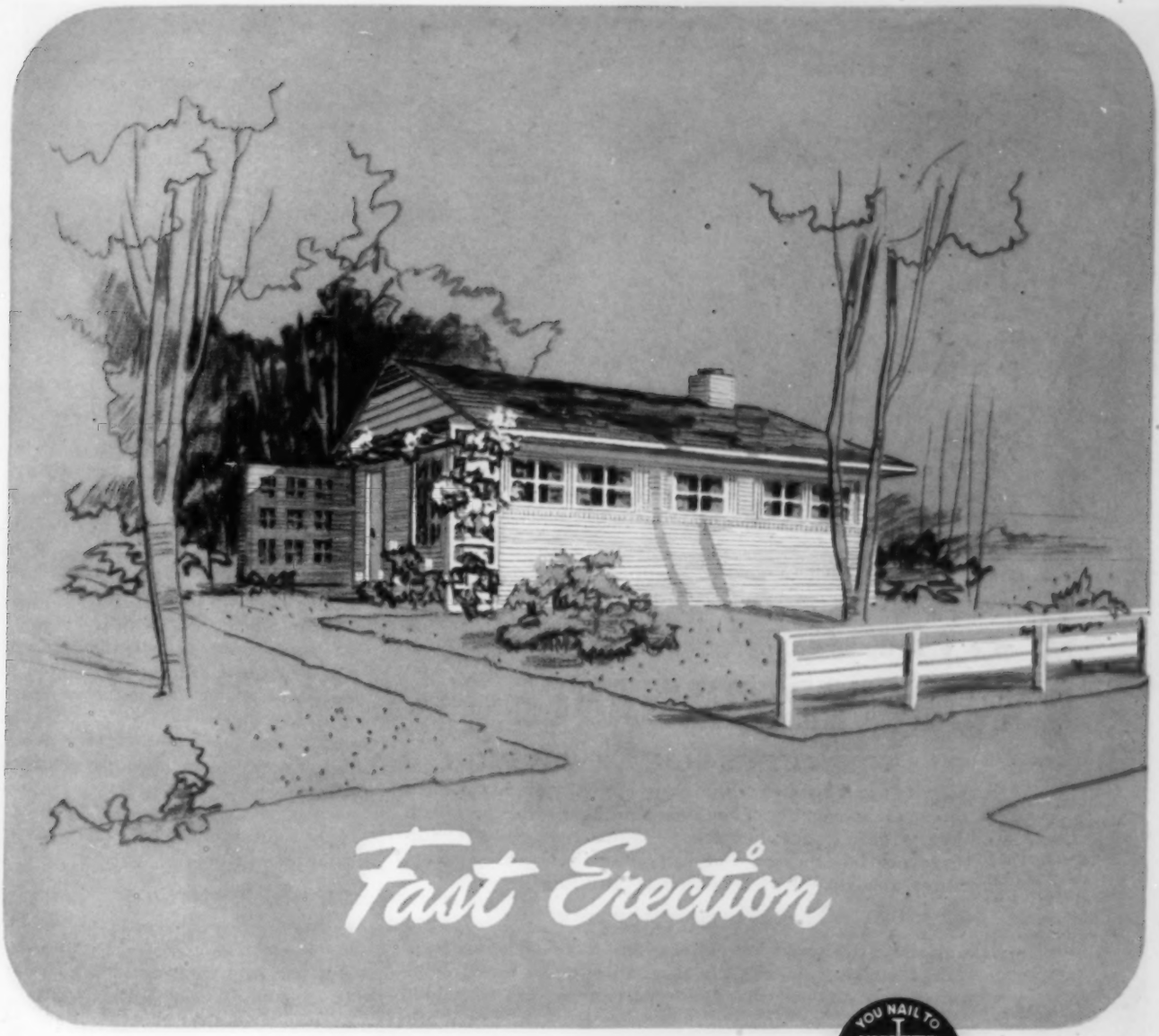
❖ ❖ ❖

TO STUDY COSTS

The American Institute of Architects and the National Association of Home Builders are to collaborate in a program designed to improve the quality of low cost homes and to find ways to reduce building costs, Douglas W. Orr, A.I.A. president, has announced.

"The collaboration between the Institute and the National Association of

(*Continued on page 16*)



Stran-Steel framing is a building product of Great Lakes Steel Corporation

YOU NAIL TO STRAN-STEEL FRAMING

Stran-Steel achieves its construction speed through unique engineering features. An efficient, simplified framing system, it requires only a few basic members and fittings. Members are delivered *pre-cut* to blueprint specifications, ready for assembly. Joining is accomplished with self-threading screws or by welding. Collaterals are attached simply by *nailing* them directly to the patented nailing groove, an exclusive feature of Stran-Steel. Joists and studs are ready-punched at convenient intervals to admit pipes and conduits. With the members in place, the punched holes are always in alignment.

Stran-Steel appeals to prospective owners, since the advantages of a durable, non-sagging, fire-resistant frame are almost self-apparent. It appeals to architects and builders because it provides the strength of steel without curtailing freedom of design. For complete information on Stran-Steel framing, see Sweet's File, Architectural, Sweet's File for Builders, or the January Issue of Building Supply News.

BUILD WITH

STRAN STEEL

GREAT LAKES STEEL CORPORATION

Stran-Steel Division • Dept. 36 • Penobscot Building • Detroit 26, Michigan

UNIT OF NATIONAL STEEL CORPORATION

. . . PROPELLAIRS FOR PERFORMANCE

GIVE YOUR CLIENTS REAL AIR MOVEMENT

Propellairs are the simple solution to virtually every problem of volume air movement. They sweep out dust, moisture, heat, and fumes *quickly* and *completely*—improve working conditions, reduce labor costs, and increase production capacity. Functional designs for professional applications.

ENGINEERED EFFICIENCY

Scientifically designed Propellair fans have airfoil-section blades—actually *pull more air* than they push, for double-action efficiency. The *whole* blade surface works—with load *evenly* distributed from hub to blade tip—for axial-flow, high-velocity, high-volume air output.

REMOVES DUST AND MOISTURE

This roof installation of three Propellair Verti-Stacks at the Farmers' Dryer, Alvin, Texas, provides air-moving capacity of nearly 150,000 c.f.m. Its powerful exhaust clears the entire drying tower of troublesome dust and removes moisture as fast as it is given up by the rice. Discharge shoots high into outside air.

DIRECT-CONNECTED PROPELLAIR FANS

Each sturdy Verti-Stack includes a readily removable direct-connected Propellair fan. Direct-connected fans are also available for easy mounting in walls, windows, panels, ducts, and stacks. Sizes 12 to 60 inches diameter. Capacities to 88,000 c. f. m. Powered by fully enclosed, ball-bearing, heavy-duty Robbins & Myers electric motors.

Write today for detailed information.

PROPELLAIR

DIVISION OF ROBBINS & MYERS • INC.

SPRINGFIELD • OHIO

THE RECORD REPORTS

(*Continued from page 14*)

"Cheesecake" — plaster and gold leaf panel by Robert Cronbach for Hollenden Hotel Bar, Cleveland. From "Architecture Needs Sculpture" exhibition by the Sculptors Guild at the Architectural League of New York recently

Home Builders," Mr. Orr said, "will include joint meetings of local chapters or their committees, an interchange of convention speakers, and the preparation of factual information to be disseminated among the memberships.

"This collaboration should point the way to some methods of reduction in the cost of housing, stimulated by the contribution which can be made by the members of the architectural profession to the solution of the problems of small home construction."

ON THE CALENDAR

May 22–Sept. 15: "Tomorrow's Buildings" exhibit of current work of members. Architectural League of New York, 115 E. 40th St., New York City.

June 13–indefinite: Exhibition of photographs, "Recent Discoveries in Chinese Architecture." Metropolitan Museum of Art, New York City.

July 7–12: 1st Annual Store Modernization Show, Grand Central Palace, New York City.

August 17–22: Annual meeting, American Society of Sanitary Engineering, Congress Hotel, Chicago.

Sept. 1–4: Fall meeting, American Society of Mechanical Engineers, Hotel Utah, Salt Lake City, Utah.

Sept. 10–12: Porcelain Enamel Institute Forum, Ohio State University, Columbus, Ohio.

Oct. 22–25: 1947 Convention, New York State Association of Architects, Hotel Commodore, New York City.

Oct. 30–Nov. 1: 15th Semi-Annual Meeting, American Society of Tool Engineers, Statler Hotel, Boston, Mass.

Nov. 3–7: 2nd International Lighting Exposition and Conference, Stevens Hotel, Chicago.

Dec. 2–5: Annual Meeting, American Society of Mechanical Engineers, Chalfonte-Haddon Hall, Atlantic City, N. J.

(*Continued on page 132*)

In general factory areas, industrial asphalt tile provides a durable, economical floor that's fast trucking, nonslip. Unlike troweled-on types of flooring, industrial asphalt tile can be put into use immediately after it is installed.

For light manufacturing areas, stock rooms, and general utility sections in factories, Accoflor is a durable and economical flooring. A roll form material, its tough mastic composition is bonded to an asphalt-saturated felt backing.

There's unlimited opportunity to design attractive floors for offices with asphalt tile, linoleum, Linotile, or rubber tile. Their smooth, lustrous surfaces are easy to keep clean with simple sweeping and occasional washing and waxing.

suitable for installation in storerooms, wrapping and packing rooms, drafting rooms, and locker rooms. This type of flooring is low in cost. And its thermoplastic property makes minor dents and cuts self-healing under traffic.

Overcoming Explosion Hazards—In powder or chemical plants and other places where combustible fumes or liquids are present, there is a need to dissipate static electricity. A floor of conductive asphalt tile does that job effectively since it has exceptionally low electrical resistance. Conductive plastic can be used in the joints to connect the tile, or the seams can be welded together to provide a monolithic surface. While a conductive flooring is desirable in paint spray booths, its conductivity is destroyed if a coating of paint or lacquer accumulates on the surface of the floor.

Traffic Markers—Insets and feature strips in various colors of standard and greaseproof asphalt tile are often used, in combination with other resilient flooring, to mark off traffic lanes and safety zones. Letters and numerals in standard asphalt tile also make it easy to establish permanently stock areas and production sections.

Offices and Corridors—Where color and design are desired and where heavy industrial wear is not encountered—in offices, corridors, display rooms, cafeterias, and other areas—such resilient floors as linoleum, asphalt tile, Linotile, and rubber tile should be considered. If cost is of primary importance, a choice can be made between asphalt tile and linoleum. While Linotile and rubber tile are more luxurious in appearance, their costs are correspondingly greater.

On-Grade and Subgrade Floors—Floor areas on or below grade present the problems of moisture and alkali. Industrial asphalt tile, conductive asphalt tile, and Accoflor are recommended for installation on grade level concrete subfloors. Standard and greaseproof asphalt tile are the only types of resilient flooring recommended for below grade installation since these products have the ability to withstand the greater degree of alkaline moisture encountered here.

★ ★ ★

If you have a specific problem in recommending floors for factories and industrial plants, or desire further information on any Armstrong flooring material, write to Armstrong Cork Company, Floor Div., 2407 State St., Lancaster, Pa.

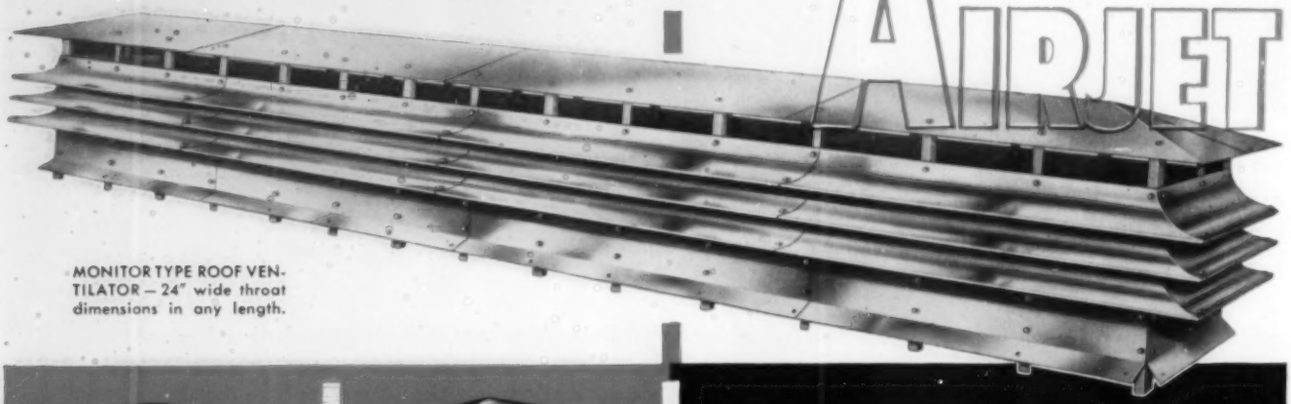
FLOOR SELECTION CHART FOR PLANTS

PLANT AREAS	INDUSTRIAL ASPHALT TILE	CONDUCTIVE ASPHALT TILE	ACCOFLOR	STANDARD ASPHALT TILE	GREASEPROOF ASPHALT TILE	LINOLEUM, LINOTILE, RUBBER TILE
BASEMENTS & FLOORS BELOW GRADE				X	X	
CAFETERIAS	X		X	X	X	X
FOOD PROCESSING AREAS					X	
DRAFTING ROOMS			X	X		X
EXPLOSION-HAZARDOUS AREAS	X	X				
FREIGHT ELEVATORS	X					
LABORATORIES	X			X	X	
RAMPS	X					
LOCKER ROOMS, WASHROOMS	X		X	X		X
MANUFACTURING AREAS	X		X			
OFFICES, CORRIDORS			X	X		X
STAIR TREADS & LANDINGS	X			X		X
TOOL AND STOCK ROOMS	X		X			
WAREHOUSES, SHIPPING AREAS	X					

ACCOFLOR AND LINOTILE ARE REGISTERED TRADE-MARKS.

Here's what the architects & engineers wanted

GET THESE FACTS BEFORE SPECIFYING!



MONITOR TYPE ROOF VENTILATOR—24" wide throat dimensions in any length.

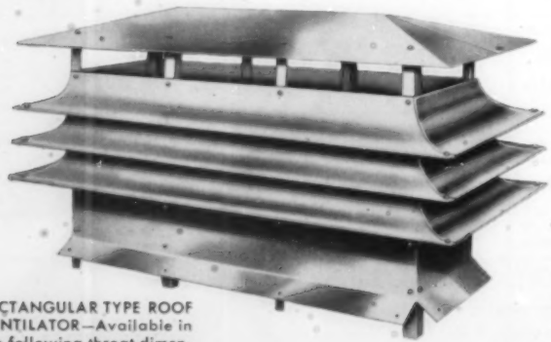
VENT FLUE CAP—Available in 4" and 6" diameters.

SQUARE TYPE ROOF VENTILATOR—Available in 12" x 12¾" throat dimensions.

Roof Ventilators — Vent Flue Caps

One of our first steps before designing AIRJETS was to ascertain preferences of Architects and Engineers regarding *natural draft ventilators.*

Here is what we found predominant throughout the profession:



RECTANGULAR TYPE ROOF VENTILATOR—Available in the following throat dimensions—12"x24¾",12"x36¾", 12"x48¾", 24"x48¾" and 24"x72¾"

HIGH EFFICIENCY WITHOUT DOWN-DRAFT—so we designed AIRJETS to create a "jet of air" efficiently without down-drafts regardless of wind direction or turbulence caused by obstructions. Certified tests by California Institute of Technology guarantee this fact.

LOW SILHOUETTE—so we designed AIRJETS to conform to modern day architecture—low, modern, streamlined. AIRJETS never exceed 22" in height. Transition bases are never needed. AIRJET vent flue caps work 12" from roof regardless of obstructions. Largest unit weighs only 29 pounds in aluminum.

MODERATE COST—so we "machine-make" AIRJETS in VOLUME—THEY ARE THE LOWEST COST UNITS ON THE MARKET—Make us prove it. Certified tests prove they are the lowest cost per cubic foot of air moved. Comparative unit and installation costs prove AIRJETS most economical. AIRJETS eliminate insufficient ventilation by reason of costs!

THESE UNITS AVAILABLE IN ALUMINUM—NOW! SOLD KNOCKED-DOWN AND PACKAGED!

SEND FOR COMPLETE INFORMATION

A few territories still available for Exclusive Franchise Dealers

C. R. GELERT COMPANY
35 North Raymond Avenue
Pasadena 1, California

Please send me your new catalog No. 446 on Airjet Roof Ventilators and Vent Flue Caps.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

MANUFACTURED BY

C.R. Gelert COMPANY

35 North Raymond Avenue, Pasadena 1, California

CONSTRUCTION COST INDEXES — Labor and Materials

United States average 1926—1929 = 100

Compiled by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corporation, from data collected by E. H. Boeckh & Associates, Inc.

NEW YORK

Period	Residential Brick	Residential Frame	Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.	Commercial and Factory Buildings Brick and Steel
1920	136.1	136.9	123.3	123.6	122.6
1925	121.5	122.8	111.4	113.3	110.3
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1940	126.3	125.1	132.2	135.1	131.4
1941	134.5	135.1	135.1	137.2	134.5
1942	139.1	140.7	137.9	139.3	137.1
1943	142.5	144.5	140.2	141.7	139.0
1944	153.1	154.3	149.6	152.6	149.6
1945	160.5	161.7	156.3	158.0	155.4
1946	181.8	182.4	177.2	179.0	174.8
Jan. 1947	195.4	198.0	183.9	186.2	183.0
Feb. 1947	204.7	208.9	194.7	193.5	191.1
Mar. 1947	211.2	217.2	196.2	194.4	192.9
Apr. 1947	217.6	220.8	204.7	205.9	202.4
	% increase over 1939				
Apr. 1947	**76.2**	**80.3**	**51.6**	**54.3**	**55.5**

ATLANTA

Period	Residential Brick	Residential Frame	Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.	Commercial and Factory Buildings Brick and Steel
1920	122.8	122.9	108.6	109.8	105.7
1925	86.4	85.0	88.6	92.5	83.4
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1940	91.0	89.0	96.9	98.5	97.5
1941	97.5	96.1	99.9	101.4	100.8
1942	102.8	102.5	104.4	104.9	105.1
1943	109.2	109.8	108.5	108.1	108.7
1944	123.2	124.5	117.3	117.2	118.2
1945	132.1	133.9	123.2	122.8	123.3
1946	148.1	149.2	136.8	136.4	135.1
Jan. 1947	161.9	164.2	145.7	147.1	145.8
Feb. 1947	165.8	166.8	148.8	149.9	148.8
Mar. 1947	178.7	182.9	153.4	152.0	153.1
Apr. 1947	179.2	183.3	154.4	153.5	153.5
	% increase over 1939				
Apr. 1947	**107.7**	**120.8**	**62.3**	**57.6**	**62.0**

ST. LOUIS

Period	Residential Brick	Residential Frame	Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.	Commercial and Factory Buildings Brick and Steel
1920	118.1	121.1	112.1	110.7	113.1
1925	118.6	118.4	116.3	118.1	114.4
1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1940	112.6	110.1	119.3	120.3	119.4
1941	118.8	118.0	121.2	121.7	122.2
1942	124.5	123.3	126.9	128.6	126.9
1943	128.2	126.4	131.2	133.3	130.3
1944	138.4	138.4	135.7	136.7	136.6
1945	152.8	152.3	146.2	148.5	145.6
1946	167.1	167.4	159.1	161.1	158.1
Jan. 1947	183.4	183.8	168.5	169.3	169.5
Feb. 1947	187.6	187.0	173.9	175.2	172.8
Mar. 1947	196.9	198.9	175.8	176.4	175.3
Apr. 1947	199.1	200.3	178.0	179.0	176.9
	% increase over 1939				
Apr. 1947	**80.6**	**87.1**	**49.9**	**49.5**	**48.6**

SAN FRANCISCO

Period	Residential Brick	Residential Frame	Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.	Commercial and Factory Buildings Brick and Steel
1920	108.8	107.5	115.2	115.1	122.1
1925	91.0	86.5	99.5	102.1	98.0
1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1940	106.4	101.2	116.3	120.1	115.5
1941	116.3	112.9	120.5	123.4	124.3
1942	123.6	120.1	127.5	129.3	130.8
1943	131.3	127.7	133.2	136.6	136.3
1944	139.4	137.1	139.4	142.0	142.4
1945	146.2	144.3	144.5	146.8	147.9
1946	159.7	157.5	157.9	159.3	160.0
Jan. 1947	173.2	170.8	167.3	169.4	172.5
Feb. 1947	177.0	173.9	172.4	174.6	176.1
Mar. 1947	185.6	184.9	174.2	175.7	178.4
Apr. 1947	188.6	187.0	177.8	180.4	180.7
	% increase over 1939				
Apr. 1947	**78.6**	**88.4**	**51.4**	**48.0**	**55.1**

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published legal prices, thus, indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.

REQUIRED READING

LE CORBUSIER AND THE U. N.

U.N. Headquarters: Practical Application of a Philosophy of the Domain of Building. By Le Corbusier. New York 18 (330 W. 42nd St.), Reinhold Publishing Corp., 1947. 7¼ by 9½ in. 80 pp. illus. $3.50.

Here is Le Corbusier's inimitable philosophy of city planning applied to the problems of where and how to house the United Nations. M. Le Corbusier will have none of the term "world capital"; that, he says, is an expression which is "nothing but ambiguity, equivocation, uncertain dimensions, emphasis, and artificial acceptance. It is a source of error, bloated with false deductions. One has a vision of this capital burdened at the outset by the construction of a palace necessarily pompous. . . . Sublime contours confirm its pretensions."

This is a discussion of the U.N.'s long search for a suitable site for its permanent headquarters. Here is a list of 13 "points of evaluation," drawn up by Le Corbusier, according to which every site considered was inadequate. Here is Le Corbusier's skillful argument that the entire U.N. could be adequately housed on a single square mile, and here is his description of what the headquarters should be like. Finally, here is the story of the eruptive decision for a mid-Manhattan 17-acre site.

Le Corbusier, of course, was a member of the committee which for seven months looked, analyzed, discussed and theorized, which had the responsibility of reporting and recommending to the General Assembly prior to the vote on the several sites under consideration. This book, therefore, is in part a record of the proceedings, in that it is a summary of Le Corbusier's own arguments throughout the life of the committee. Presented chronologically, enlivened with numerous sketches, these arguments will be of lasting interest.

At the closing session of the Permanent Headquarters Committee Le Corbusier addressed his confrères: "Our decision was taken in 24 hours — and these 24 hours, set against the seven months of our former studies, startled many minds. But, what had actually happened was that the hour of the *men of the profession*, indeed the very hour of modern architecture, had come. . . . Modern techniques furnish the solution for the urbanization of contemporary cities by establishing and maintaining values through the use of height." The East River headquarters, M. Le Corbusier said, will not be the cradle for the United Nations, but will be its "Battle-Post" — "a post comprising offices and meeting halls which will thus be situated at the very focus of the great international arteries," which "should compel the formation of an integrated organism capable of fulfilling what you are setting out to do and controlling the functions of this organism to this end."

CAPITAL IN THE MAKING

Thomas Jefferson and the National Capital: Notes and Correspondence. Edited by Saul K. Padover. Washington 25, D. C., Government Printing Office, 1946. 6¼ by 9½ in. xxxvi + 522 pp. illus. $1.75.

The part that Jefferson played in the building of the nation's capital has been much written about, but no previous volume has given so vivid a picture of his city-planner role as does this collection of letters and notes, many of them hitherto unpublished. Here are letters from Jefferson to Washington, to Madison, L'Enfant, Latrobe, and many others, and letters to Jefferson from them, dating from November, 1783 to April, 1818. Dating, in other words, from before the choice of a site for the proposed "Federal City" had been made to the selection of furniture for the "President's House."

The Jefferson who emerges from these letters and notes is a city planner of no mean ability. Having negotiated the choice of the Potomac site for the new city, he proceeded to lay down the basic needs and the general plan, then directed much of the entire project from the surveying to the landscaping.

As Charles W. Porter points out in his introduction to this volume, these letters show "how the education and experience of Jefferson ideally equipped him for many phases of city planning work." Before he was through with the building of Washington he had displayed and used a knowledge of surveying, a familiarity with the city plans of a number of European cities, legal training, a considerable knowledge of architecture and the fine arts, a good mechanical bent, innate tact and diplomacy and good taste. His letters constantly reveal the extent of his knowledge and the many facets of his character and often brilliant mind.

When Major L'Enfant needed plans of European capitals, it was Jefferson who supplied them: "I have examined my papers," he wrote, "and found the plans of Frankfort on the Mayne, Carlsruhe, Amsterdam, Strasburg, Paris, Orleans, Bordeaux, Lyons, Montpelier, Marseilles, Turin, and Milan, which I send in a roll by this Post. They are on large and accurate scales, having been procured by me while in those respective cities myself." When skilled labor had to be imported from Europe, it was Jefferson who advised how best to go about it. It was Jefferson who straightened out financial tangles, who soothed wounded feelings, who served so often as the court of last appeal. This is the story told in these letters — history in the first person.

DREAMS INTO REALITY

How to Buy a House. By L. Douglas Meredith. New York 16 (49 E. 33rd St.), Harper & Brothers, 1947. 5¼ by 8¼ in. xii + 176 pp. $2.50.

Of all the books on home ownership which have appeared in the past several years, this is likely to be one of the most useful in preventing foreclosures and heartaches. Dr. Meredith, as chairman of the National Life Insurance Company's committee on finance, is well acquainted with the pitfalls of home buying. He sees them for what they usually are — lack of knowledge or lack of foresight. His purpose here is to uncomplicate the whole procedure for the prospective purchaser, not to warn him away from the venture.

Dr. Meredith wastes little time on the usual preliminaries, devoting only four chapters to such subjects as whether to buy or to rent, new house or old, the needs of the family, the location, price, etc. His main theme, and the whole reason for this book, is the fool-proofing of the purchase. Go easy, he warns; be sure you are buying exactly the house you want; then arrange the financing in the way best suited to your requirements. Here Dr. Meredith is at his best. He describes in detail the various types of loans available, the types of lender, the terms. He explains the incidental and not always foreseen charges, he explains interest, insurance, deeds, the technicalities of title search, and so on. He tells how the construction of a new house can be financed. He stresses the need for a good architect. He gives, in other words, all the information the prospective home buyer should have.

TOWARD A BETTER LIFE

Communitas: Means of Livelihood and Ways of Life. By Percival and Paul Goodman. Chicago, Ill. (5750 Ellis Ave.), The University of Chicago Press, 1947. 11 by 8½ in. x + 142 pp. illus. $6.00.

"This is not a book of physical plans, but of issues and ideas," the authors explain in their preface. Architect Percival and writer Paul have combined their talents "to raise the level of thinking about physical planning and once more to bring the fundamental issues to the fore." They are critical, they are very serious, they are idealistic, they are a little radical, they are sometimes sarcastic. But they *do* bring the fundamental issues to the fore.

This is a deliberately disturbing book

(*Continued on page 30*)

Designers put this project on an Economical Permanent Footing with

KOPPERS

PRESSURE-CREOSOTED PILES

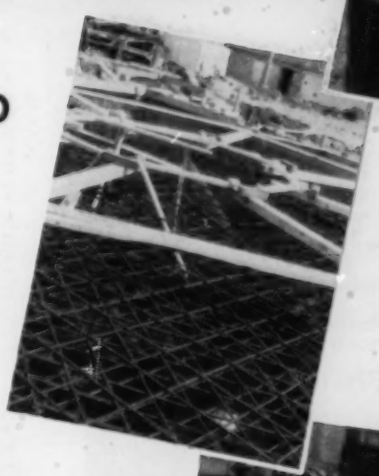
A common problem—providing a firm, *enduring* foundation in unstable soils—faced the designers of this large industrial building. To solve it, they chose a pile material whose permanence and economy have been conclusively demonstrated in thousands of applications—pressure-creosoted wood.

Koppers Pressure-creosoted piles were driven in the wall trench, and under the floor area. These multiple supports eliminate settling hazards. The treatment gives enduring protection against decay, permitting cut-offs above the water table to be safely made. It also fortifies the piles against insect attack.

The *permanence* of pressure-creosoted piles is demonstrated by the old buildings founded on them . . . and present-day *economy and effectiveness* are indicated by the many modern buildings that use this proven method of overcoming soil handicaps. Koppers Pressure-creosoted piles permit economical development of areas where water tables are below pile cut-offs. They provide adequate bearing value in constructing foundations for heavy bridges or machinery. And they are an accepted means of equalizing support when part of the building is over filled or soft ground.

Koppers is equipped to treat piles up to 125 feet in length, and the delivery situation is excellent. If you have a foundation problem, get in touch with Koppers.

Piles in trench will be capped by wall; others by floor slab.



Reinforcing rods for floor slab. Piles can be seen below.

Floor partially poured. Lower reinforcing is covered.

KOPPERS PRESSURE-TREATED WOOD

KOPPERS COMPANY, INC.

PITTSBURGH 19, PENNSYLVANIA

Fewer resharpenings with MICROTOMIC VAN DYKE exclusive rectangular shape Chisel Point Leads

Think of the better work you can do, particularly on big-scale plans and drawings. The efficient rectangular lead sharpens with 20% more graphite at its chisel point—and wears just that much longer.

It's the same HI-DENSITY graphite that gives round-lead VAN DYKES their great advantage in reproduction quality. Extra opacity for sharper, clearer points.

The special Chisel Point Leads come in 6H, 4H, 2H, HB, 2B and 4B. Clip the coupon, and try one!

EBERHARD FABER

37 Greenpoint Avenue, Dept. AR-7 Brooklyn 22, New York

I'd like to experiment with a FREE SAMPLE _____degree Chisel Point VAN DYKE.

Name_____

Firm_____

Street & No._____

City & State_____

Dealer's Name_____

REQUIRED READING

(*Continued from page 28*)

It discusses any number of city plans — and finds them all bad. It rips into the American standard of living, finds America badly wanting in the amenities of life. It dissects, it criticizes. And, finally, it suggests.

The suggestions are painted in with broad, bold strokes. Take, for instance, the idea of substituting for the many buildings of a city one gigantic "container," a cylinder a mile in diameter, whose corridors are continuous show windows, whose perimeter is given over to hotels and restaurants. Surrounding this cylinder is a mile-wide ring containing the "university" — the theaters, opera houses, museums, libraries, laboratories, etc. Next comes a residential zone, arranged in blocks of about 4000 population, in a continuous apartment house around an open space of 500 by 1000 feet. Here "space" is rented instead of apartments; each tenant takes his own area and develops it as he wishes: "what must be provided for the family is an empty shell without partitions and (under luxury conditions) two stories high, completely serviced with light, heat, water, etc., through the columns of the building, as in a skyscraper." And beyond the residential area comes a zone of open country — in which are located the junior colleges to segregate the adolescents!

This city plan, be it noted, is not seriously presented. It is radical, probably impossible of achievement. But that is the point the Goodmans are making: that city planning must be bold, that city planners of the antimacassar variety will get nowhere. Tradition, say the Goodmans, can have no place in planning for the city of tomorrow.

SCHOOL DAYLIGHTING

Daylight in School Classrooms. By Hugh Paul. Toledo 1, Ohio (Ohio Bldg.), Insulux Products Division, Owens-Illinois Glass Co., 1947. 8½ by 11 in. 74 pp. illus. Gratis.

The stated purpose of this book is "to promote a better understanding of the use of daylight and to provide a method for introducing daylight into classrooms to obtain maximum efficiency with minimum brightness contrast regardless of weather conditions and building orientation." To achieve this dual purpose, the author has assembled detailed performance data on a light-directional fenestration for school classrooms, and has evolved a formula and tables for applying the data to rooms of all sizes and lighting conditions. Diagrams are numerous and clear. Considerable meteorological information, charts and tables are included for easy computation of the brightness conditions to be expected in any given locality.

ARCHITECTURAL

RECORD

POOR RELATIONS—PUBLIC, THAT IS

PUBLIC relations are extremely important both to the United Nations and to the architectural profession. Newspaper publicity is perhaps the most important phase of public relations and the recent newspaper release showing one rendering (see page 10) is what leads us to use the words "poor relations."

The rendering itself is good, in Hugh Ferris' inimitable dramatic technique. It was the publicity that was poor, for this one drawing is not enough to give any adequate idea of the project. Little wonder that the public should be disappointed.

It should have been obvious to both the U.N. and the architects that the publication of this one rendering would produce not only misconceptions regarding the final architectural treatment of the project, but also would bring down on its head an avalanche of criticism ranging from wisecracks to pontifical profundity, with emphasis on the wisecracks. With only one rendering as a basis for critical judgment and therefore no opportunity to study the architectural problem and its solution, it was natural and unfortunate that the more facetious criticisms should be given prominence in the papers. It was also unfortunate that prominent architects were responsible for the humourous analogies, for however lightly they may have been tossed off, the general public has taken them seriously and frequent repetition belittles both the United Nations and its Planning Board.

The damage done is irreparable, but we hope at least one lesson will be learned from the incident. Henceforth when material regarding the plans and the architecture for the world capital are to be released, they should be so complete and so well-prepared that the public will see both the logic and the skill of the designers. The publicity should definitely be propaganda which will produce a favorable reaction and thoughtful criticism rather than clever catch phrases and witty similes. The designs themselves as shown in renderings and plans should certainly inspire the public as being worthy symbols as well as functional buildings and should justify the time and the talent that is being spent on the world's Number One architectural project.

It is devoutly to be hoped, and confidently expected, that when the design for the capital of the United Nations is again (and soon) shown to the public, there will be many drawings and a full and lucid explanation of the planning and design. The Planning Board and its group of competent international architectural consultants should see to it that their efforts are exhibited in a manner worthy of the magnitude and importance of the project. It is equally important that the design recommended in the report of the Director of Planning and the Planning Board shall be one which the public and the nations of the world will hail as a design expressive of its high purposes as well as being functionally efficient as a means for bringing about world unity and world peace.

Kenneth K. Stowell

EDITOR

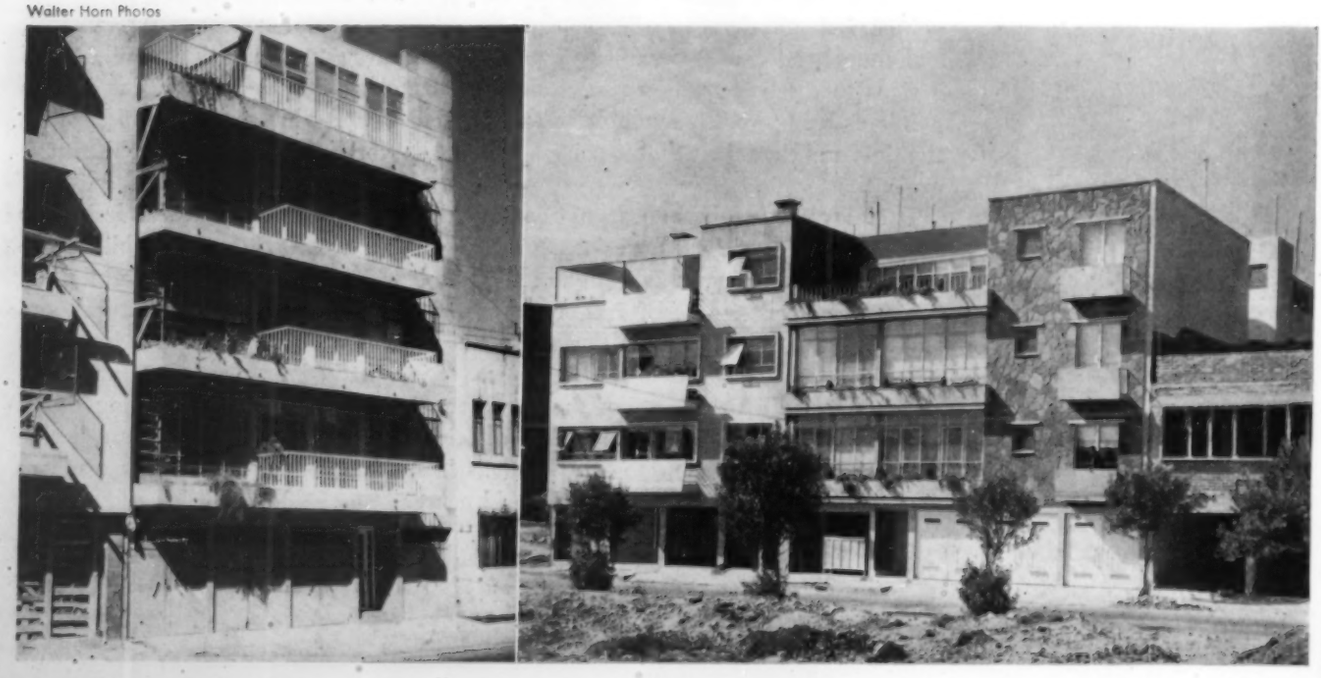
MODERN MEXICO

THE fancier sections of Mexico City glitter with glass. Huge sheets, ribbon strips and inlaid bricks turn the façades of the countless "modern" buildings into shimmering light. These same sections are redundant with balconies, cantilevers, box windows and hanging gardens. The first breath the visiting U. S. architect draws is a gasp. After the reflected light has ceased to dazzle him and he has become accustomed to acres of balconies and ribbon windows, he can begin, more or less rationally, to examine and evaluate modern architecture in Mexico. The breadth and depth of his analysis will depend largely upon his understanding of the country itself. Because his analysis will involve esthetic criteria, it will necessarily be arbitrary and subjective.

Mexico City is a boom town — buildings are mushrooming throughout the city, jostling and crowding over one another. Each building is brazenly indifferent to the rights of its neighbors. Each structure tries to outstrut, to be taller, more daring, to use more glass or cantilever further than the rest. There is a good deal of visual hysteria in the composite picture of Mexican architecture. Nearly three-fourths of the buildings going up in Mexico City can be labeled "modern" if one defines the term somewhat loosely. The same is true of new building in Monterrey. Even staid, introverted Quadalahara is beginning to adorn herself with masses of glass brick and sinuously curving concrete walls. There is no architectural coordination in Mexico because there is little urban planning. There is almost as much talk about it as in the U. S., with about as much action. One can deplore the fact that Mexico, which is becoming urbanized in the modern industrial sense a century later than the United States, is not profiting more by our mistakes; but since our own house is of less apparent but equally fragile glass, we have no right to blame Mexico for her failure to plan. We can gently suggest, however, that until she does, she amplify and enforce her building code for safety's sake, and enact a few setback restrictions to curb the greedy competition among buildings for a place in the sun. It is encouraging that the wild exuberance of Mexico's building shows signs of subsiding.

History. Modern architecture in Mexico began about 1925. The outstanding pioneer of this movement is José Villagrán García, whose tuberculosis sanatorium,

Walter Horn Photos



Personal Observations, Impressions and Appraisals of Current Architecture

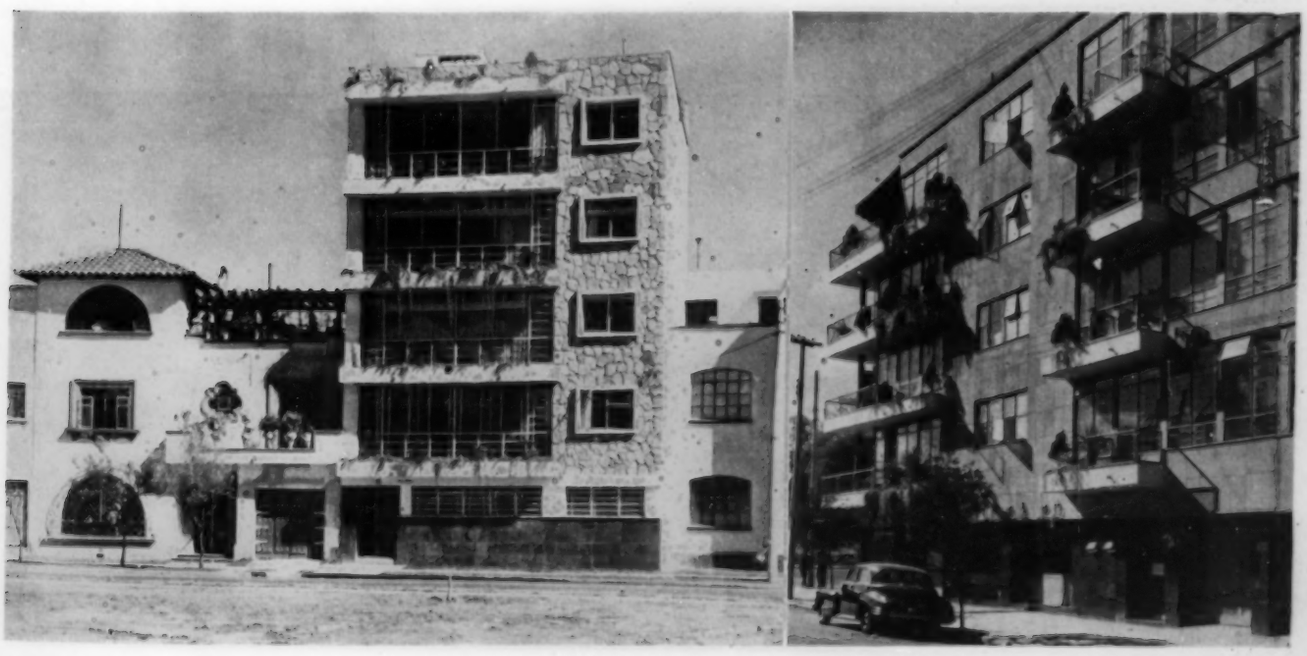
By Ann Binkley Horn

Guillermo Zamora Photo

built in 1929, seems to me architecturally still far in advance of many contemporary American hospitals, though of course the latter are more lavish and up-to-date in equipment. The architectural form of Villagrán's building and its obeisance to functional demands repudiated the formulas of the Spanish colonial and French neoclassic traditions which previously had dominated Mexican urban architecture.

The impetus of the new movement came from Latin Europe, particularly from France via Le Corbusier, who is still the prime outside source of architectural inspiration to Mexican architects. Awareness of German, Dutch, and other northern contributions to the movement has been somewhat vague. The Mexican temperament is rather unresponsive to what it considers the austerity and coldness of these non-Latin movements. Almost unanimously, Mexican architects ignore or disparage the architecture of Frank Lloyd Wright, though they manifest a little more polite enthusiasm for some other North American architectural names. They are impressed with the technical efficiency of architectural construction in the United States, and envious of the variety and quality of the building materials available

Above, El Sagrario Church, Mexico City, an example of the rich baroque ecclesiastical architecture of the 18th Century. Below, street fronts from Mexico City's melange of modern architecture. Extreme right and extreme left, two recent apartment houses designed by architects Alvarez and Madaleno

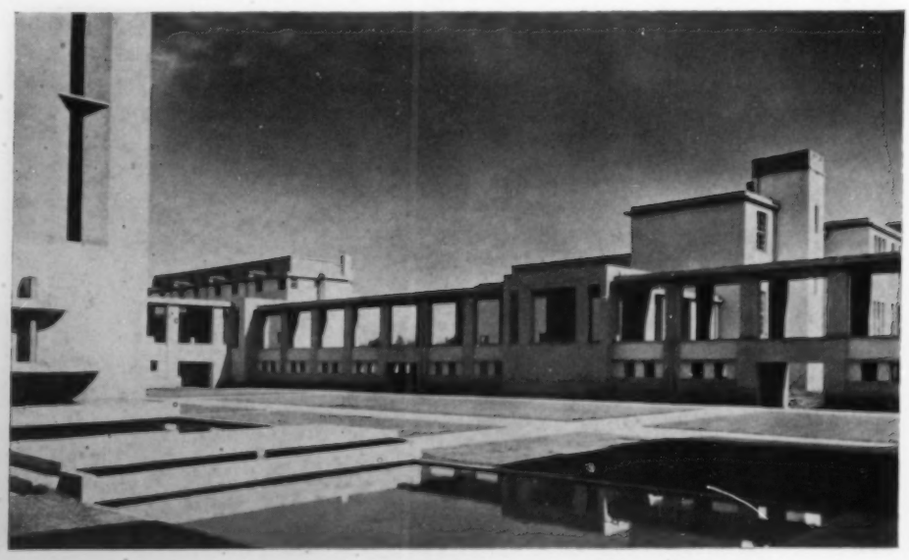


to the North American architect.

Although the mainstream of cultural influence continues to come from Europe, the Mexican architect is becoming increasingly interested in the work of his North American counterpart. The architects who are working on the hospital construction program for the Ministry of Public Health have visited dozens of U. S. hospitals to study their physical and administrative organization. Our architectural magazines are as widely read now as the French issues. The architects of both countries can learn much from each other. The American, more cautious, is perhaps more solid and certainly more disciplined; the Mexican is bolder, more sensuous, and perhaps more imaginative.

Social Context. The modern architectural movement in Mexico, as in all countries, cannot be divorced from its social context. Economic, political, and cultural forces have naturally been powerful determinant factors in the formation of the movement and will largely dictate its future direction.

Mexican architects have plunged audaciously and at times a little wildly into the world movement of modern architecture. Some of the precepts of this movement as expounded in other countries, they have ignored or deprecated; others they have seized upon with truly Latin fervor. Consequently, during its early stages the movement was dedicated with almost religious ardor to the cult of "functionalism." The Mexican architect was in a hurry, and did not analyze with painstaking thoroughness the meaning of this word. However, it became the battle cry of his revolution against the persistence of colonialism, the upper-class courtship of French neoclassicism and the extravagance of Mexico's unconquerable baroque spirit. The slogan of "functionalism" came to Mexico shortly before the government proposed through its federal school system to give a "rational and exact concept of the universe." The new movement found an eager welcome in a country where revolution, change and reform were watchwords. Its arrival coincided with the political culmination of the long struggle against feudalism. Mexico was to become scientific, modern, and internationally minded. The architectural counterpart of this program was clearly "functionalism" and the "international style." New buildings were stripped bare of ornament; structural materials were no longer camouflaged by marble or hand-painted tiles; the colonial arch and the neoclassic cornice disappeared. Naked and shivering slightly, the new



Sanatorio de Huipulco, Mexico, D. F., 1929. The original buildings and tower of the tuberculosis sanatorium by pioneer modern architect José Villagrán García "repudiated the formula of the Spanish Colonial and French Neo-Classic traditions" in its clean-cut forms

buildings went up in defiance of tradition. These buildings were a necessary and important step in the creation of the new architecture. Unfortunately, they were hastily and often badly built; much of the time they were gaunt and bleak.

What the Mexican architect then, and his followers even today, failed to understand is that the philosophy of functional construction implies more than the exposing of materials or the denuding of surfaces. It requires the careful investigation of structural forms, a thorough understanding of the properties of materials, their possibilities and their limitations. The proper use of steel and concrete does not permit careless or sloppy connections, nor can the new construction afford them, for, by being exposed, they have become articulate elements in the visual expression of the building. Similarly, the Mexican architect did not take time to realize that the simplicity of the new buildings demands a far more searching study of proportional and spatial relationships than the old, which could conceal their failures under borrowed finery.

The economical appeal of "functionalism" was strong to the socially-minded architect of the Twenties and Thirties. Mexico is poor and her needs are immense. Economy of construction and the suppression of ostentation were among the most important contributions of the early functionalist movement. Today, unfortunately, the principle of economy is being overridden by the impulsive disciples of the lush new baroque trend.

Ever since 1910, urban Mexico has been in a hurry. This haste is often disorderly enough to sustain popular credence in the *mañana* myth, but sun-sleepy feudal Mexico is now an exclusively rural phenomenon.

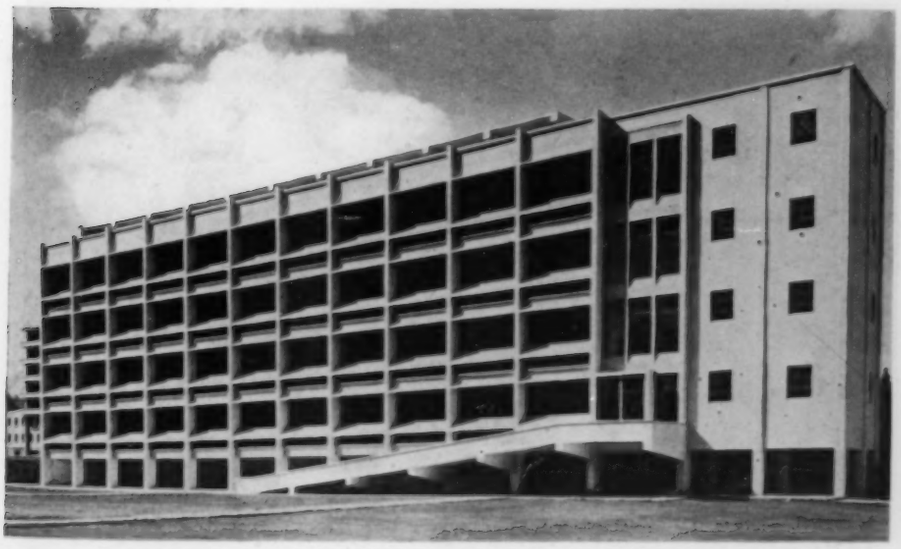
First the feverish pace was a by-product of the Mexican Revolution, of its sweeping political, educational and land reforms which were often effected with bloodshed and sacrifice, but were always done in a hurry with no time for analysis or self-criticism. Today Mexico is in a different kind of hurry; she is struggling to industrialize; she is breeding a middle class; she is becoming

Guillermo Zamora Photo

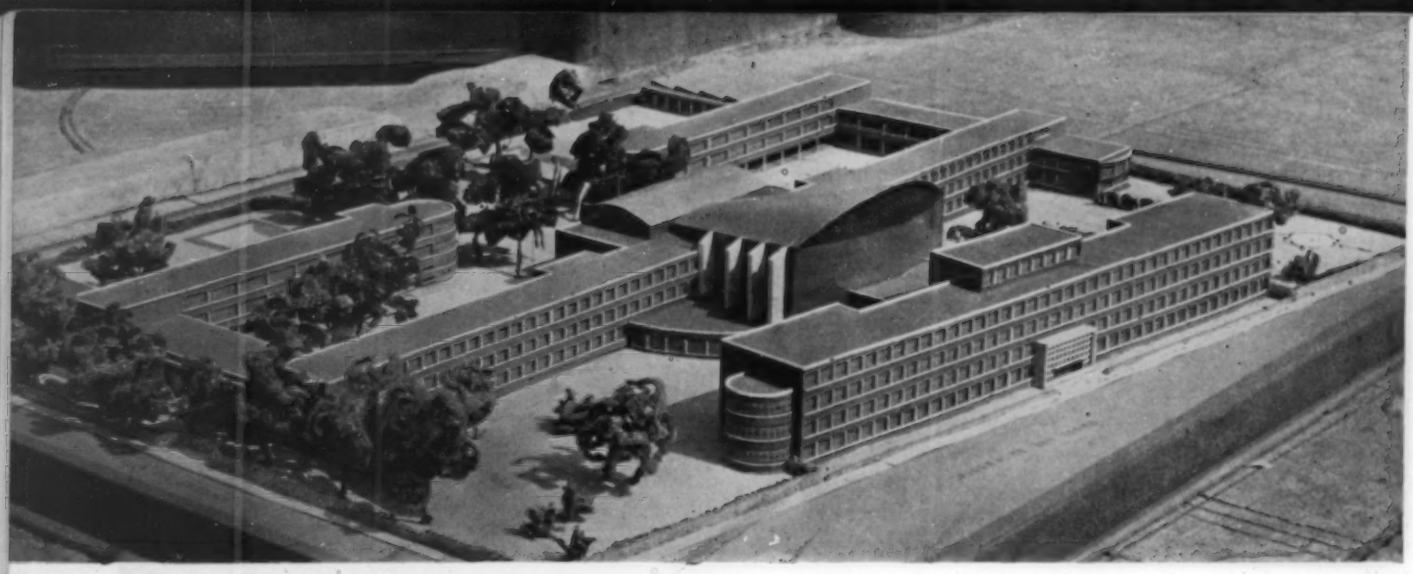
technologically minded. Her government is full of new technicos who are fighting with old-time politicos for control of Mexico's destiny. The extreme left wing calls Mexico bourgeois and reactionary; the right wing dubs her progressive; the less militant left, a "progressive bourgeois democracy."

Whatever she is, she has launched into a period of materialist expansion, which more effectively than the revolutionary political period, will toll the doom of Mexico's medieval heritage. The architect is caught in this maelstrom. He is building frantically, but his buildings, though often elaborate, are of the boom-town variety. With a few brilliant exceptions these buildings are hastily contrived. They often are poorly constructed and pay mere surface homage to the modern idiom. This homage, however, they do pay with an enthusiasm and determination which is to the architects' credit.

Construction. Brand new and expensive buildings in Mexico settle with alarming unevenness on their foundations. The soil in Mexico City is a fearful obstacle to



Above, architect José Villagrán García's Frontones del Parque "Mundet" 1945. Mexico's popular handball game boasts a truly functional architectural pattern. Left, his surgical pavilion, built in 1940, not far from his original sanatorium buildings shown on the page opposite.



Photographs of the model of the school, Centro Escolar Ribera de San Cosme, Mexico City, Enrique Yañez, architect. View from south

building. It is fantastic to watch workmen sending wooden pile after wooden pile, sometimes three or four on top of one another, as though they were pushing toothpicks into a bowl of jelly. On one building, the National Lottery, Engineer Cuevas has experimented with floating concrete foundations. This building has just been completed though it was some ten years in construction and it is too early to be sure of the results. It seems probable, however, in view of soil conditions and the city's susceptibility to earthquakes, that the possibilities of floating foundations should be seriously and intensively investigated. In the meantime, other architects are experimenting with systems of transferable weights to compensate for settling of the buildings. Mexican buildings are blithely reaching higher and higher from their precarious foundations. In towering New York they would be lost, but on Mexico's uncertain soil they seem, at the least, very dangerous. Recently a visiting engineer from the U. S., an expert in foundation construction, murmured politely to a group of Mexican architects that they were inclined to be somewhat audacious, a remark which a few of the more self-conscious translated less kindly.

The Mexican architect is only in part responsible for

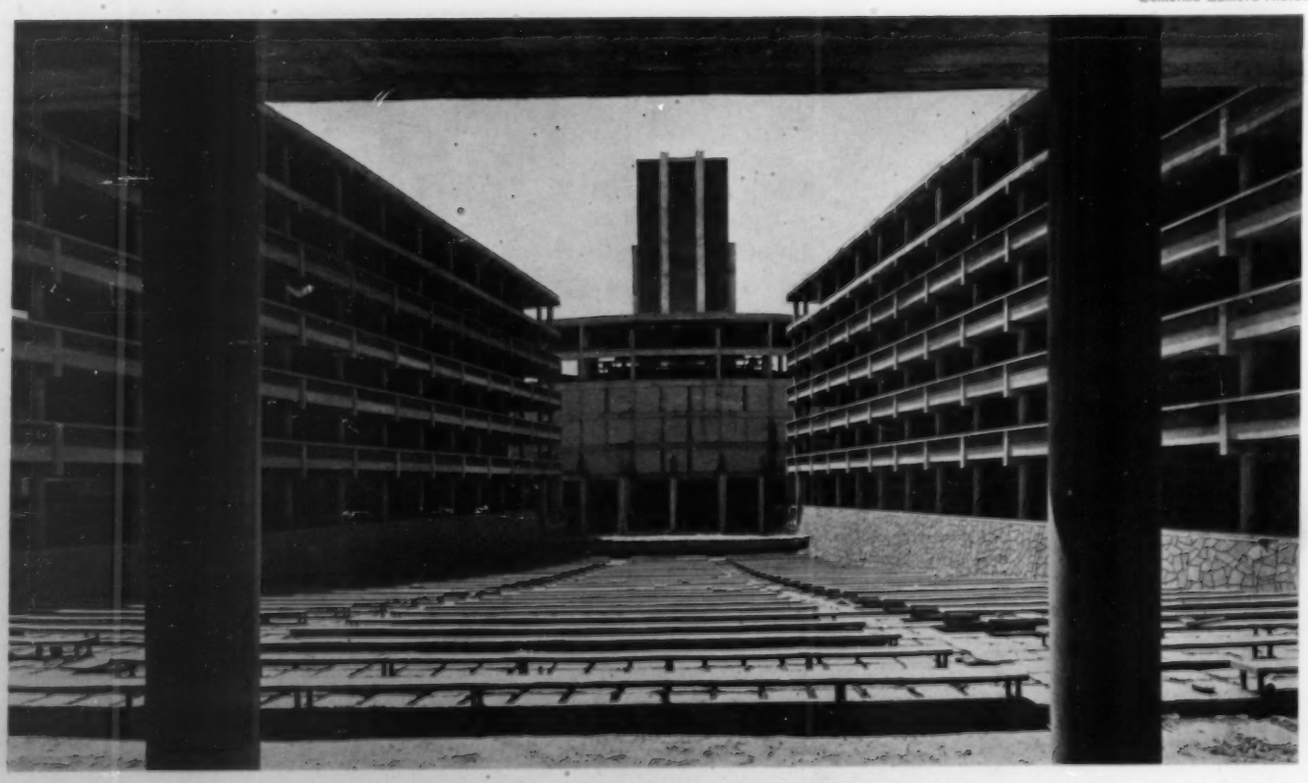
View of model from north. The school is designed to accommodate some 3000 students. Photographs of the actual buildings below

the almost uniformly poor quality of urban construction. First, he lacks materials of good quality. Almost all steel framing must be imported from the States. This restricts him in the vast majority of cases to the use of reinforced concrete. This concrete, while it probably meets minimum safety requirements, is apparently of neither uniform nor high quality. Standard grading, mechanical mixing, rigid adherence to specified formulas, and large scale uniform production are all extremely difficult things to obtain in Mexico where rule of thumb calculations and primitive modes of working predominate. Mexican labor is cheap but usually unskillful and inefficient. The Indian craftsman tradition is not evident in the work of the urban mason or bricklayer. This is true even in the rural village. The Indian is a temple builder, not a house builder. He has a rather otherworldly attitude toward secular buildings and he underlines their transient nature by the casual, almost indifferent manner with which he constructs them. Nor are Mexico's newly rich, the architect's clients, particularly interested in sponsoring well-constructed buildings. They are concerned with show and not with the niceties of sound and careful construction. It is rather poetic to watch dozens of ant-like workmen crawling up

Luis Limon Photos

Normal School, Mexico City. "Escuelas Normales de Maestros," Mario Pani, architect. The model above shows the architect's conception of the school in the grand manner. Two great wings curving from the central tower provide classrooms for some 4500 students. The library is centrally located between the tower and the large open-air auditorium which is flanked by schoolrooms. The plan also calls for a stadium, swimming pool, tennis courts, etc. Left, tiers of classroom windows of one of the two main wings. Below, the open auditorium, and, on the opposite page, the great sweep of the main facade with the central tower and colonnade

Guillermo Zamora Photos



makeshift ladders that lean dizzily on the towering skeleton of a skyscraper-in-construction carrying heavy cement sacks; or to watch them watering a concrete column by throwing up cupfuls of water from an old soup can. It is poetic but not very efficient. One feels as though the working crew of the Egyptian pyramids had been transported intact to the site of a twentieth century building and put to work without further ado.

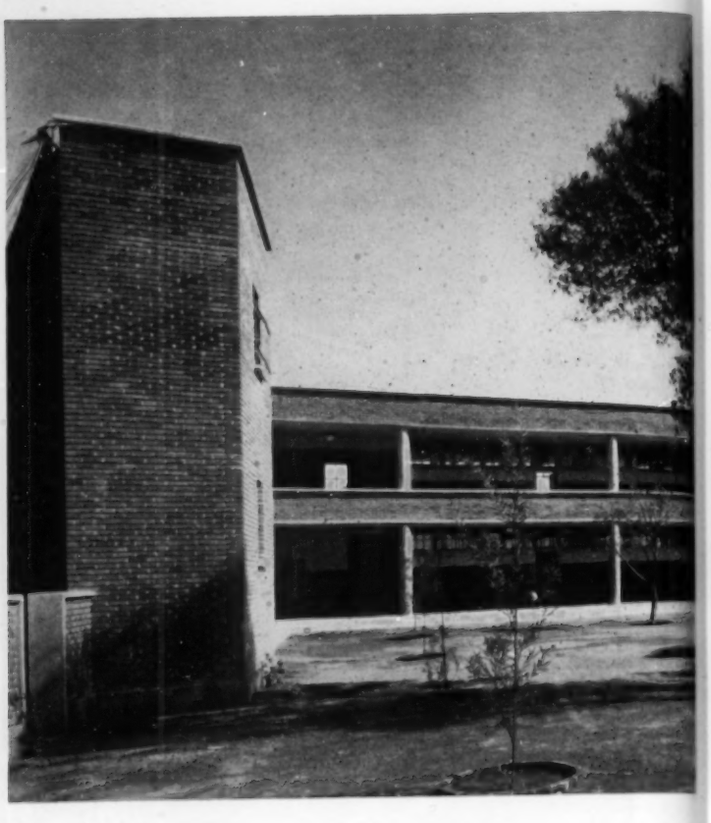
The Mexican architect has very little wood at his disposal. There is enough wood in Mexico to export large quantities to the United States, but if the architect wants wood of reasonably uniform quality, accurately cut and sufficiently cured and aged, he must reimport it from the U. S. Some Mexican plaster walls are as resistant as cake frosting. Mortar is slapped on bricks in great quantities to make up in bulk what it lacks in strength.

On the other hand the small domestic plywood industry is growing rapidly. Mexico City produces a good quality asbestos cement building board. The new and expanded steel mills in the Monterrey district will soon turn out a wider range and better quality of rolled steel members.

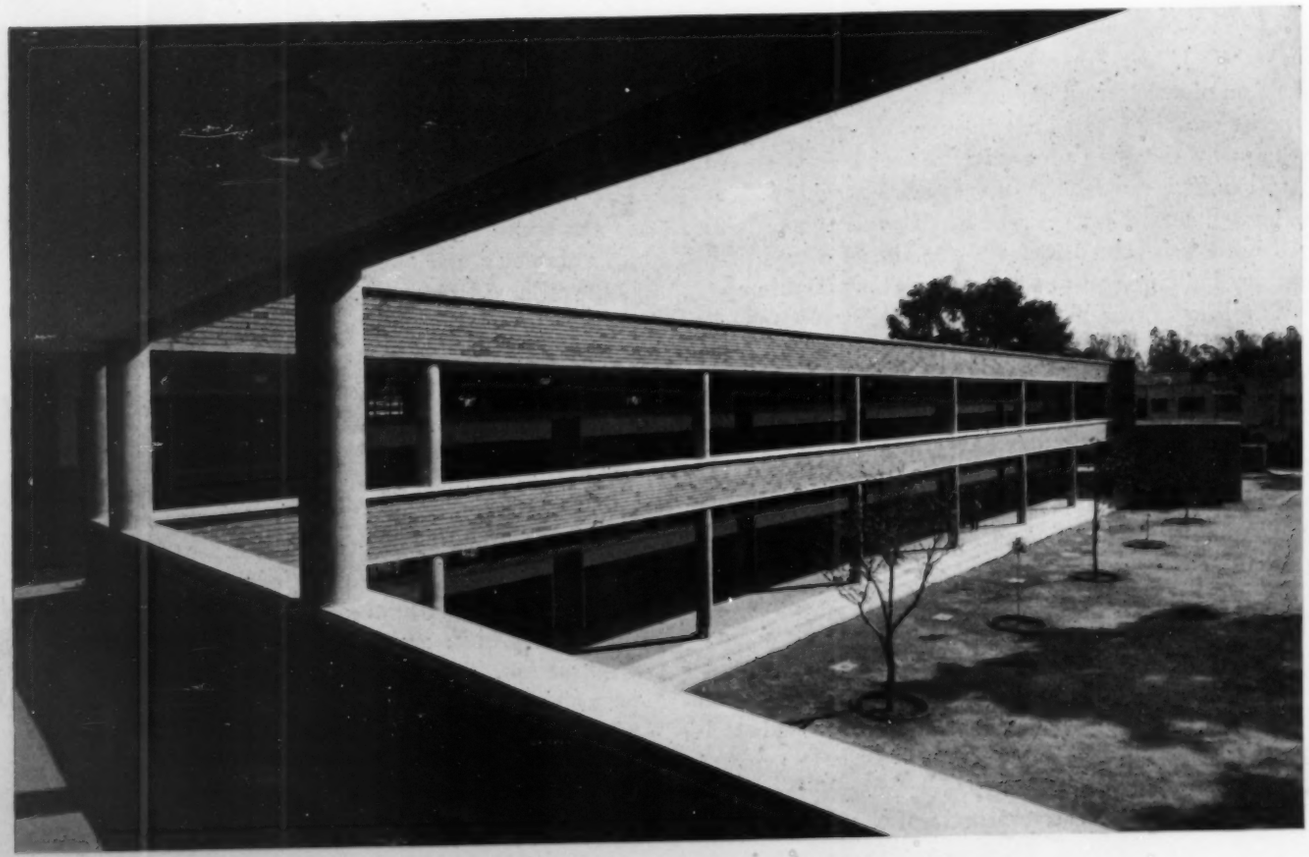
There is relatively little the Mexican architects can do to correct the negative aspects of the construction picture. They can unite and protest to contractors and building suppliers. They can and should supervise more carefully the composition and mixing of concrete. But unless they convert themselves into composites of entrepreneur, client, contractor, foreman and laborer, as well as architect, they are at the mercy of time.

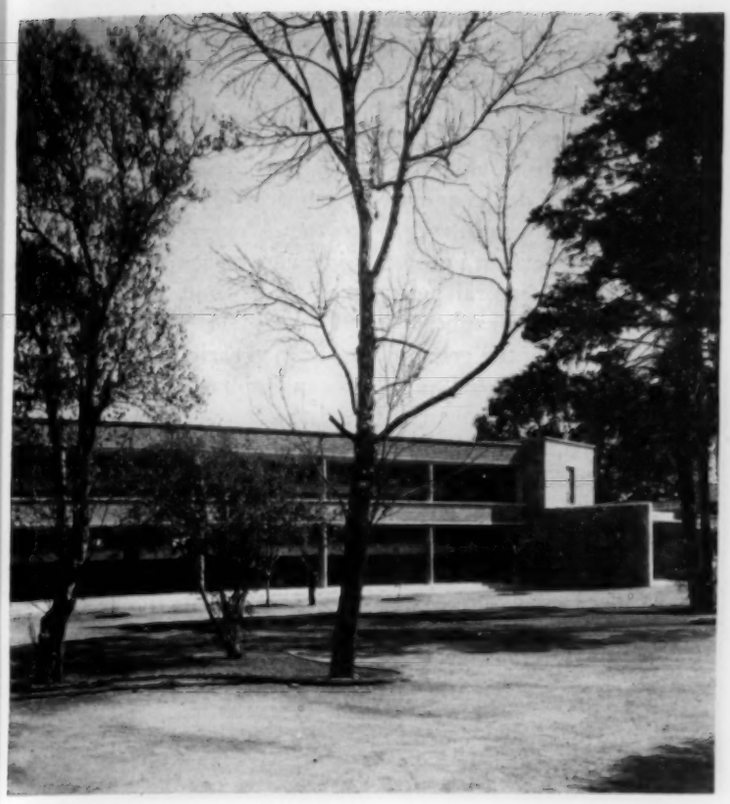
In January the giant fireproof San Cosme movie house collapsed with unequivocal finality a few moments after a fire which occurred in the building a few days (fortunately) before its formal opening. The flimsiness and unorthodoxy of much of Mexico's building construction literally shocks not only the visiting U. S. architect or engineer but the layman. Actually as a whole it is more solid than it seems, for most buildings stay up although they may sag and age prematurely.

Since Mexico's architects are bound for the time being almost exclusively to the use of reinforced concrete, they have the opportunity and the necessity to study, experiment with, and to develop reinforced concrete construction. Their efforts in this direction have not been startling. Most of the standards and formulas with which they operate are based on U. S. specifications and standards. They have limited themselves almost entirely to a standard beam and column construction without much further query, and it is certainly open to question



The Costa Rica school by José Villagrán García was built in 1946 to accommodate some 600 pupils in one of the poorest and most overcrowded sections of Mexico City. Classrooms are



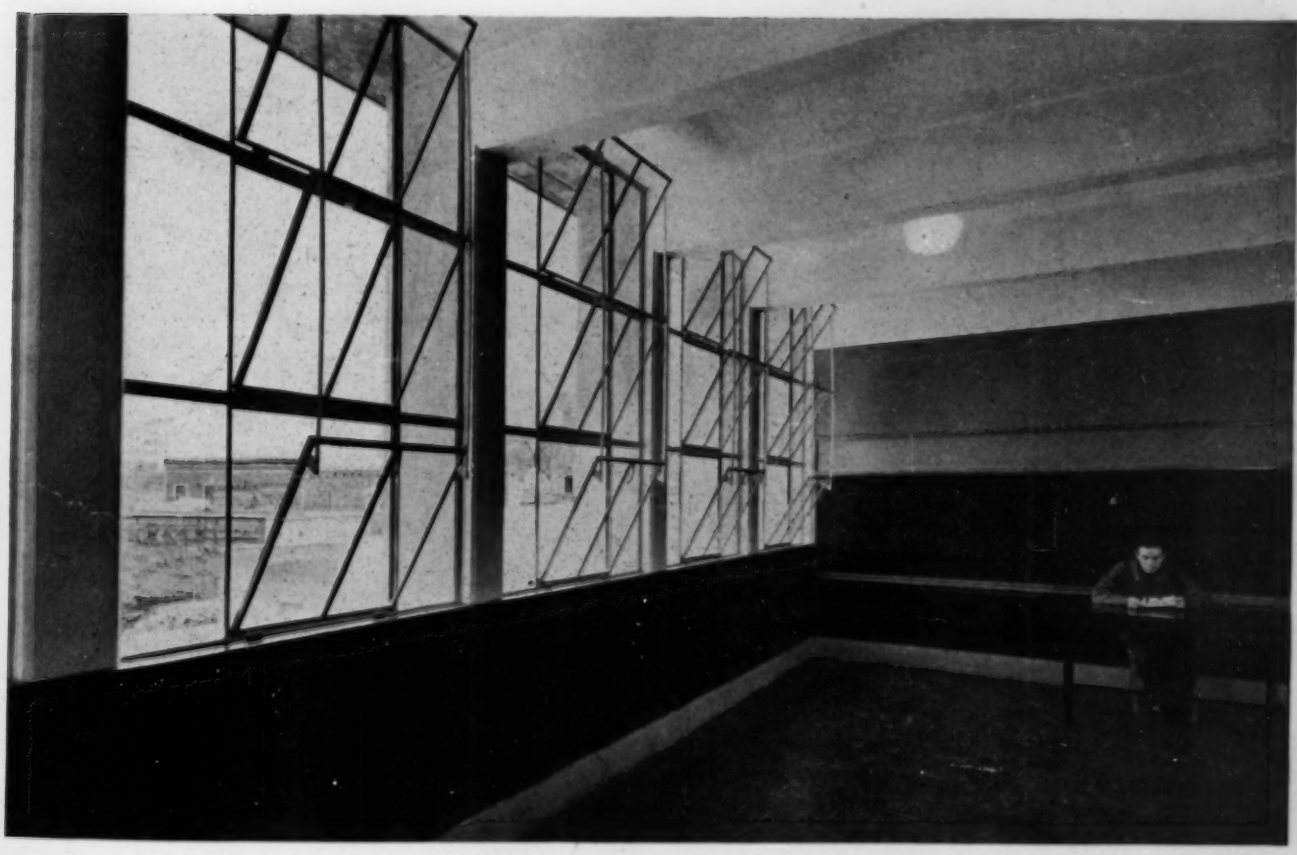


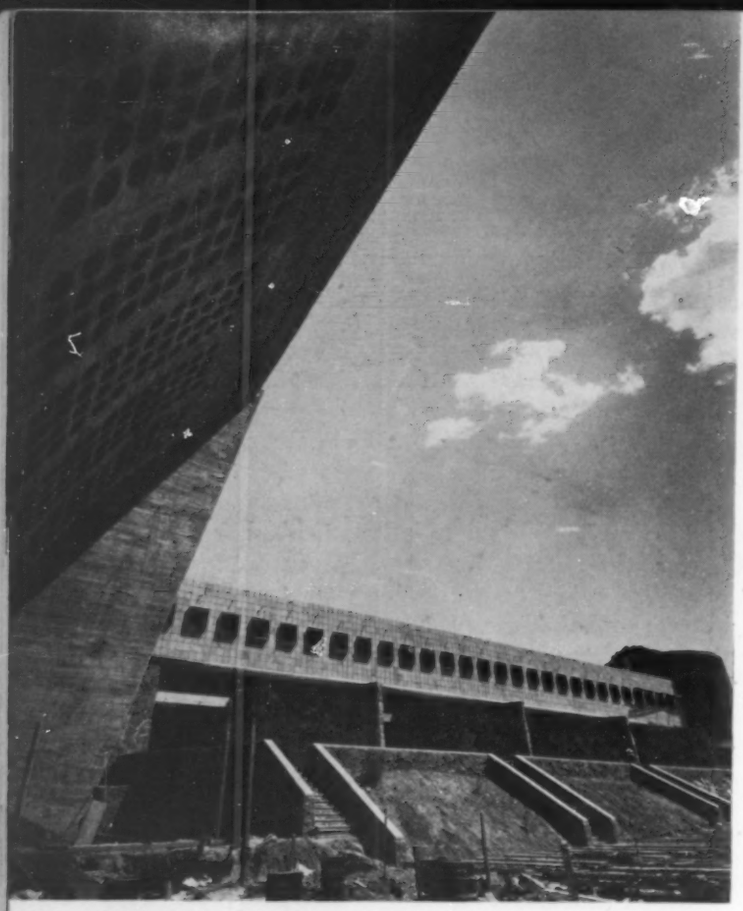
oriented E. S-E. as most desirable. Classroom windows are recessed and protected from late morning sun. "Socially and esthetically the most satisfying school in Mexico City," A. B. H.

that the ultimate in concrete construction has been reached with the conventional skeletal system. Slab or structural skin construction has been pretty well ignored in Mexico. Many architects have confined their structural innovations to exotically shaped bays or occasionally to seeing how many different types of bays they can combine in one building. On the other hand there are architects who have used the skeletal system both logically and economically and who are well aware of the opportunity and need to study and experiment with concrete construction.

Nationalism in Architecture. Internationalism is not very popular in Mexico right now. Justifiably, Mexico is weary of being a source of easy money for restless foreign capital. Mexico is as aggressively nationalist as her status permits. Her architects, too, reflect this attitude. They are interested in creating a truly Mexican architecture.

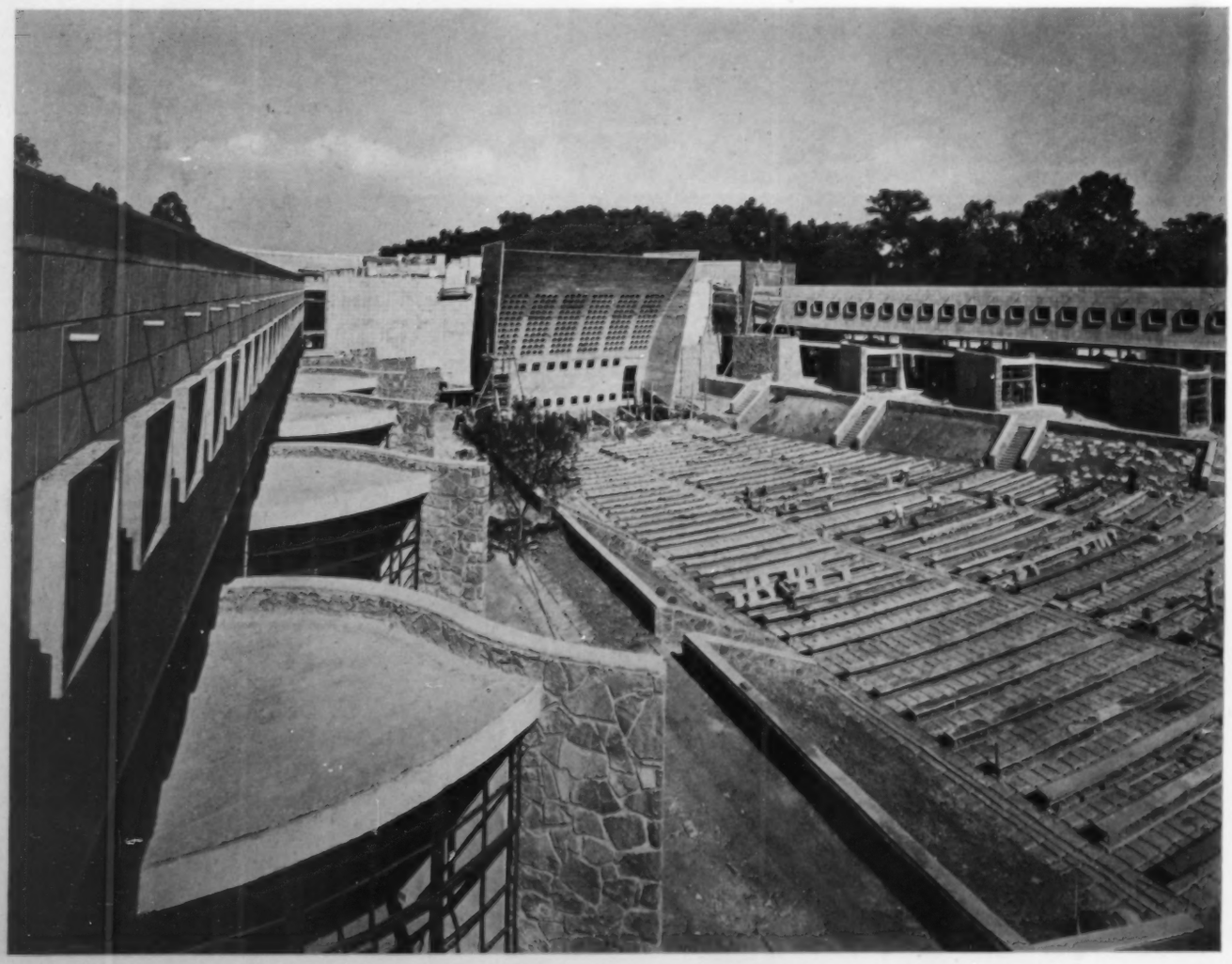
The architect likes to build monuments; he is enamored of spectacular forms, and he challenges Mexico City's uncertain soil with his aggressive skyscrapers. At times fearful and disdainful of his own country's culture potential, he borrows the appearances of other cultures, particularly the French. In the last two decades the ardent promoters of "truly Mexican" architecture have vigorously opposed the reliance on culture imports. They sincerely want to become truly Mexican, but it is not easy for the simple reason that Mexican culture has been spawned by Europe and has not yet been weaned from her. Also it would be foolish and impossible for





Mexico to deny the European components of her culture. But Mexico can come to terms with other cultures in her own way by adapting and modifying these cultural components to meet her own specific needs and conditions.

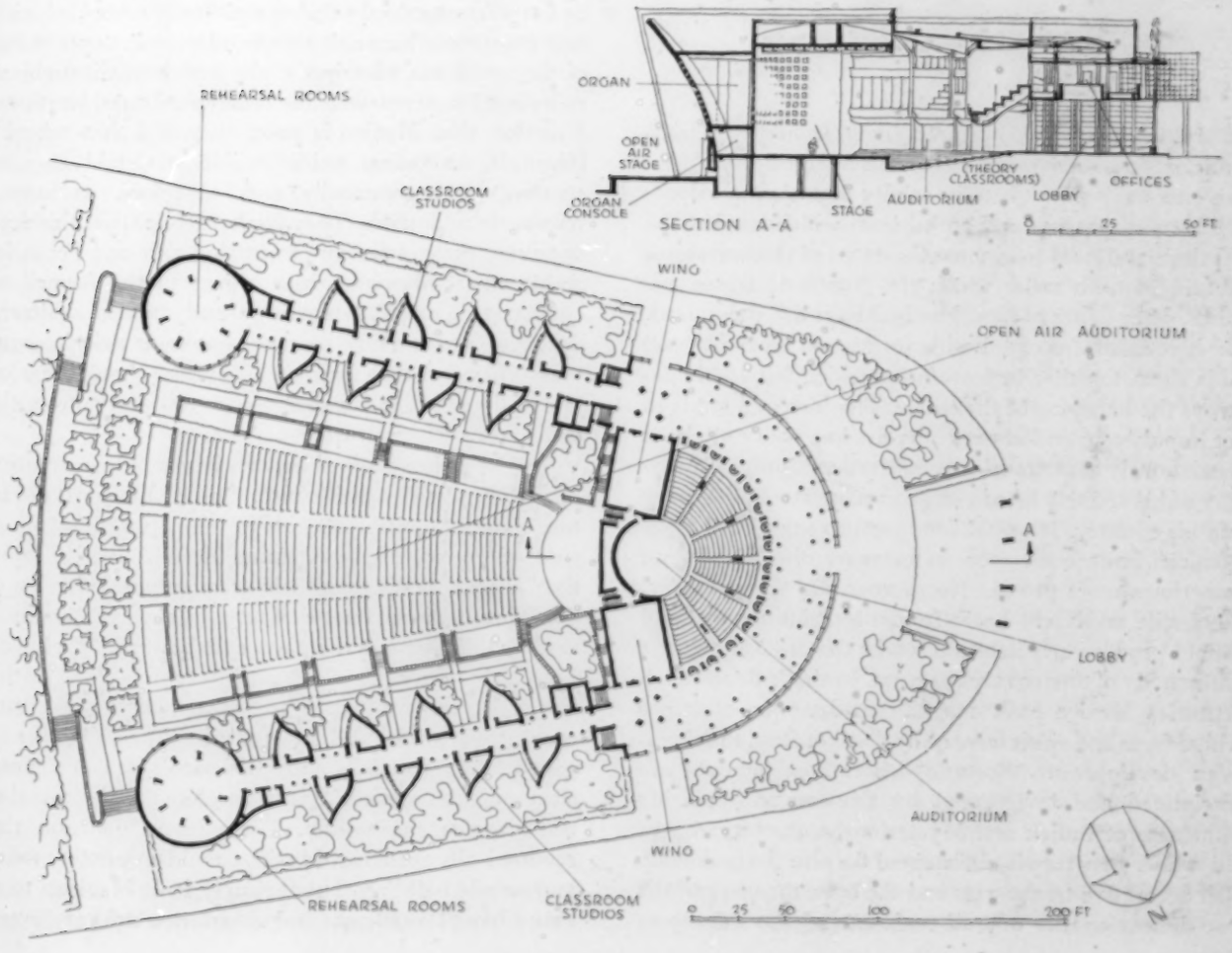
It is never easy for an architect to express the national or regional culture values of his country. These values are difficult to define everywhere, but in Mexico they are particularly arbitrary. To the Mexican architect, "truly Mexican" probably includes recognition of Mexico's architectural heritage, of the solemn Indian pyramids, of the exuberant and sumptuous baroque churches, and of the gracefully restrained early colonial buildings. In addition, "truly Mexican" probably implies to the architect the expression of the Latin temperament, which, according to popular belief, is composed chiefly of passion, imagination and enthusiasm. More rarely the interpretation of "truly Mexican" would include the expression of the Indian temperament about which there is no generally accepted definition except that it has become almost axiomatic to credit the Indian with considerable — though primitive — artistic talent. Mexican culture defies definition. It is derived from a civilization composed of harsh dualities — white *vs.* Indian, conquistador *vs.* oppressed, bloated rich *vs.* prostrate poor, cultured class *vs.* illiterate masses. It is

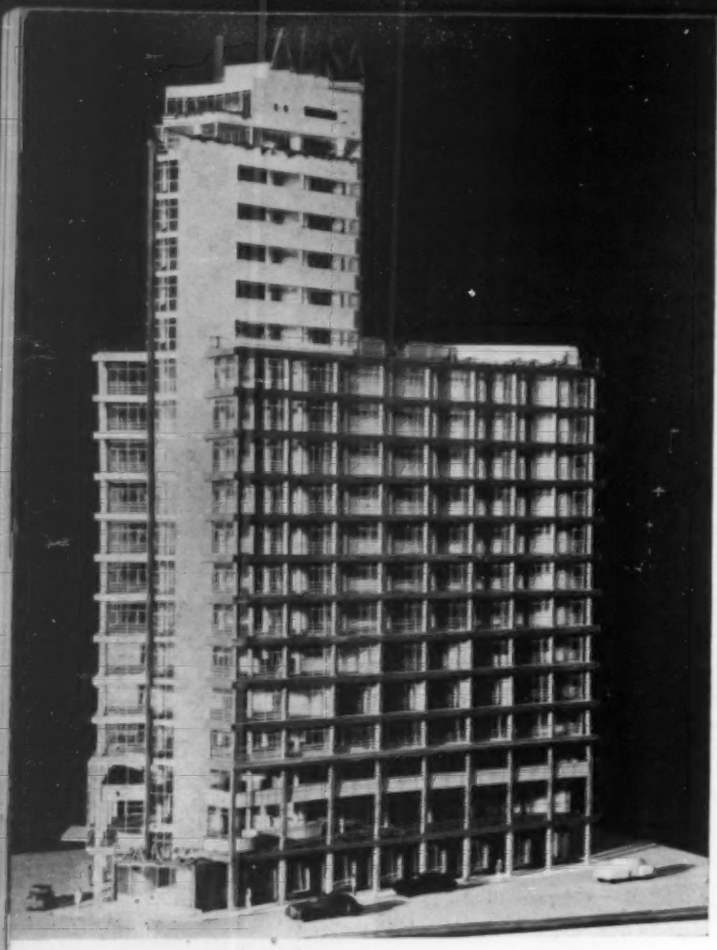


a country where glamorous façades mask dingy interiors, idealized laws shun contact with less attractive realities, and cultural imports compensate for the imagined deficiencies of the indigenous product. For such a divergent and ambivalent civilization pattern it is hard to find common denominators.

The Mexican architect talks admiringly of the rich and unorthodox color sense of the peasant or artisan, and then, 80 per cent of the time, he paints his own buildings and interiors insipid greens, timid blues, or pallid pinks. He points out the fine old colonial buildings, yet many of his own architectural creations are unruly and ornate. He blames the weaknesses of modern Mexican architecture on the lack of variety and the poverty of available materials, yet the colonial towns are limited to two structural materials, adobe and stone, and two decorative elements, paint and grillwork, and the buildings are exciting and profoundly gratifying visually. They are sturdy and well-proportioned. The sun transforms their elemental volumes and forms into a vibrant three-dimensional pattern of light and dark. Age has been gentle with the warm and lovely colors of the walls, and the delicate linearism of the iron grillwork is intensified by the severely simple background of the architectural forms. The Mexican architect has a

National Conservatory of Music, Mexico City, Mario Pani, architect. The two auditoria, one open, the other enclosed, have their stages back to back so that one great organ serves both. A unique feature of the plan is the sound-isolated arrangement of the studios which branch like leaves from the corridors flanking the open air auditorium





Model of the A.M.S.A. Insurance Building, Mexico City, Enrique del Moral and Mario Pani, architects. The reinforced concrete skeleton is exposed above the third floor where the glass walls are behind the columns. On the second and third floors, the glass wall extends in front of the columns

vastly rich if confused culture to draw from if he is both sufficiently sensitive and sufficiently critical, and if he can once take time to study calmly and consistently.

The very passion and enthusiasm which has led the Mexican architect to espouse the cause of modern architecture with an ardor which the North American admires, often betrays him. His buildings are redundant. He becomes intoxicated with forms and elements and adds them together in a profusion which frequently destroys the harmony of the whole. The Mexican tends to act impulsively and not reflectively, but above all, he is continuously and frantically active, as though by the fury of his activity he can escape taking stock of himself and his country. It would be absurd to suggest that the Mexican imitate the more calm, more disciplined, and sometimes more prosaic Northerner. On the contrary, the fertile and vivid Latin-Indian imagination can and should produce architectural works that will enrich the entire body of modern architecture. In the 16th and 17th centuries Mexico built magnificent baroque churches whose form and spirit were quite distinct from the European development. Ecstatic decorative elements are disciplined and invigorated by the conventionalizing influences of Indian art. Mysteriously, the integrity of the whole structure is maintained despite the recklessly rich decorative treatments and the open mockery of the two-dimensionality of wall surfaces and the solidity of columns. These churches were not built or designed by the invading Spaniard alone. The Indian and Spaniard together created these buildings. One of the most beautiful baroque buildings in Mexico City, the Sagrario chapel, is reputed to be the work of a full-blooded Indian.

Stylistic Trends. The bleak interpretation of the doctrines of "functionalism" as expounded during the Twenties and Thirties has been almost universally rejected. In its place have sprung up new ideas and new trends. One of the most popular is somewhat baroque in character. It has been fostered by the work of Mario Pani, in whose architecture the determinant elements are neither structural nor social, but formal, plastic, even decorative. Under the leadership of the dynamic and undeniably talented Pani, this new "formalism" is threatening to engulf the architectural school of the University. It has upset the rigor of some of the oldtime functionalists, who, along with a host of others, are ornamenting their buildings with the mannerisms and modalisms of Pani's architecture. These mannerisms are initially derived from a curious and personalized blending of the architect's neoclassic Beaux Arts education and his admiration for the work of Le Corbusier.

There is considerable and often quite bitter opposition to the "formalist" movement. One of the most articulate spokesmen and gifted architects of this opposition is Enrique Yanez. Both Pani and Yanez have recently built normal schools in Mexico City. These two schools lie but a few hundred yards apart. Pani's school is lavish and grandiose; Yanez' is simple, almost austere. Many of the architects who oppose the new formalism object to its indifference to social or economical considerations. Knowing that Mexico is poor, they feel that schools, hospitals, and other public buildings should be constructed as economically and, therefore, as unpretentiously as possible. They further realize that this does not deny the possibility of creating rich and beautiful architecture. Many of them object to the formalists' emphasis on applied plasticity and on the arbitrary designing of structure to carry out an *a priori* formal idea. They feel that form and structure should develop integrally and that decorative elements derive from the articulation of structural components.

Architects on both sides are interested in creating "truly Mexican" architecture. One of the most devastating charges that the group, which for the sake of convenience we will label "functionalist," levels against the "formalists" is that their architecture is foreign or non-Mexican in character. The only apparent justification for this charge is that the initiator of the movement, Pani, was educated in France. Actually the situation is almost the reverse. The functionalists base their charge on two facts: first, that by building extravagantly the formalists mock Mexico's true economic situation, and second, that the architectural forms they use are French imports. There is no question that economically speaking, Mexico should construct modest and simple buildings but it simply isn't Mexican to do this. Love of lavishness and ostentation are very preva-

lent Mexican traits. Architects are continually complaining of the insistence of their clients, including the government, on having buildings designed in such a way as to appear at least twice as expensive as they actually are. Show, luxury and adornment run through Mexican history from yesterday's silver inlaid coaches to today's sleek Cadillacs, from sumptuous churches to marbleized office buildings and pompous monuments. It is ironical to watch the erection of the imposing "Monument to the Mothers" designed by architect Villagran while alongside it are passing the actual Mexican mothers, barefooted, weary, and quite neglected. In Mexico public buildings tend to become monuments and private houses, palaces.

Certainly the formalists have been influenced by French neoclassicism and modernism, but the way in which the Mexican has mixed these two elements — often superficially and unanalytically, yet with zest and skill — is "truly Mexican." Furthermore, Mexico has an old affinity for French culture and there is little doubt that the present imports are more palatable to her than the "international style" was. The avidity with which the general public as well as the architect have seized upon the new trend is proof of this.

The triumph of the modern vernacular is not uncontested in Mexico. Its greatest rival is a burlesque on colonial architecture. Giddily ornate, atrociously proportioned, and hopelessly unfunctional, it has a firm grasp on the newly filled wallets of a large part of Mexico's growing bourgeoisie. Probably they derive a certain reassurance from its lavish show and traditional respectability — which they wishfully convert into a vehicle for their imaginary entrance into the haughty world of the aristocratic criollo. Then, too, its faint colonial aroma, which persists despite dilution by Californianisms and dispersion by current Mexicanisms, gratifies the popular nationalist spirit. Until recently Mexico has been spared the Babbitt-like conservatism of the middle class because she had no middle class to speak of. Now that Mexico is sprouting a middle class, factories and department stores, the rising prosperous conservative group may put a sharp curb on the future growth of the modern architectural movement.

It has often been said that the Mexican lacks a sense of the future, that his time dimensions are limited to past and present. Clearly it takes an appreciation of the future dimension to build up a culture, for this is a slow and arduous construction and can only be sustained by a people conscious of the future and of their responsibility to it. Perhaps the greatest contribution of the Mexican modern architect to his country has been his attempt to plan — to encourage both regional and urban planning. He has raised his voice against the chaos which wildly agitated, but unreflective, activity has wrought in his country. He has pointed out the heavy price that short-term thinking exacts. The Mexicans have no monopoly on the sacrifice of the future for immediate ends (to be translated immediate gains). They have merely developed a more overt sacrificial ritual than their more cagey northern neighbor. The Mexican architect has demonstrated his determination and his capacity to combat this familiar situation in two well-conceived programs — for hospitals and for schools.

Guillermo Zamora Photo

One of Mexico City's finest office buildings was designed by architects Augusto Alvarez and Juan Sordo Madaleno, Leonardo Zeevaert, Consulting Engineer. Glass walls, with sliding panels, extend completely across the north façade in front of the columns. The building is both fully air-conditioned and centrally heated

The premise of successful planning is an honest and accurate analysis of the needs and conditions of Mexico's people, her natural resources, her productive capacity, etc. The Mexican architect cannot be praised too highly for his attempt to direct the energies of his government and of private groups towards an objective evaluation of the economic and social conditions of the country and towards unhypocritical self-analysis. If he succeeds in stimulating honest self-appraisal and is able to divert the thinking of his people beyond immediate pecuniary ends to practical, but long-term and socially-minded planning, the Mexican Nation will owe him an incalculable debt.

Mexico is full of contrasts. This is so obvious that it has become a platitude. Mexico is searching; she is looking for new solutions to the century-old problems of land distribution, imperialist exploitation, soil poverty and lack of water, and of conflict between the masses and the classes, the white man and the Indian. She is in a hurry; she is passionate; she is confused; she is pregnant with eager promise. As is Mexico, so is her contemporary architecture. It must be criticized with the severity that any worth-while movement merits and on the same basis it must be respected and admired.

IDEAS BORN OF WINDS AND WEATHER

House for John R. Stone, Topeka, Kansas; Schweikher and Elting, Architects

WHILE THE OWNER of this house posed a great many positive requirements, the list clearly identifies him as the sort of client a progressive architect likes to have. The list seems not only to test the designer's ingenuity, but also to urge him to assume complete freedom to adopt whatever forms and technology seem indicated.

The client's list: view toward city — sunlight in living room and bedrooms — partially enclosed yard or garden — small bedrooms for children — small study-guest room — master bedroom, bath and lavatories all in same room, only watercloset separated — built-in refrigerator and deep-freeze in wood in kitchen — masonry floor throughout — room for heater, laundry and a servant on another level — local stone with a wood that required as little upkeep as possible — a house comfortable in winter but particularly cool in the very hot Kansas summers.

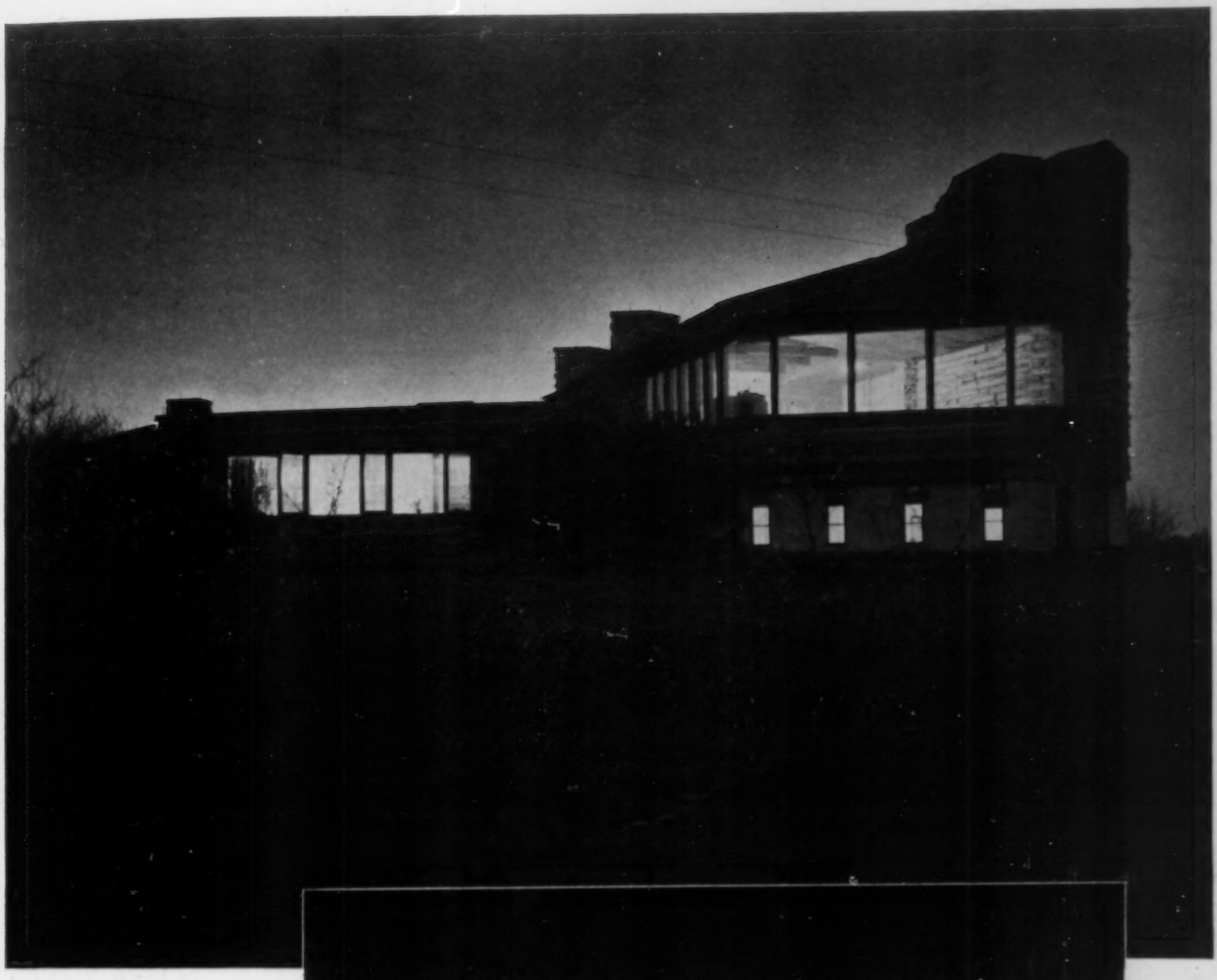
The result is a veritable houseful of ideas, not the least of which is a system of warm-air, floor-type radiant heating (see page 86).

The ridge ventilators were designed to give the house additional ventilation in the summer. They are screened and lead directly to sliding wood panels in the sloped ceilings. Panels are counter-balanced, weather-stripped, hand operated. The louver design was complicated by prevailing winds: they were placed for a southwest breeze in summer, but the winter winds are northwest, and the sustained velocity is quite high.

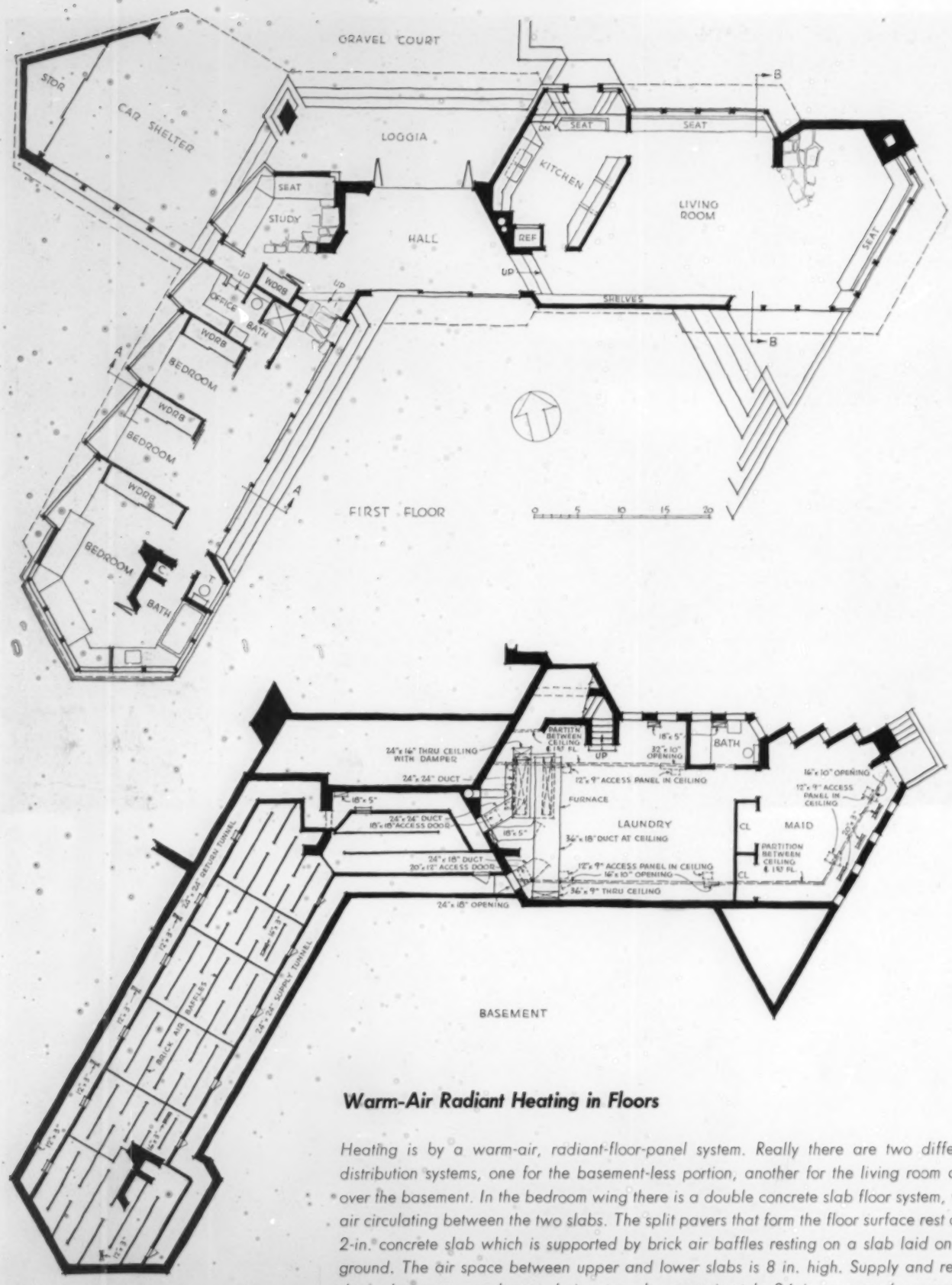
Additional ideas developed naturally from site considerations. The land slopes upward toward the west, and neighboring houses and passing traffic look down somewhat on the property. Hence the blank walls to the northwest, with only small windows to the southwest in the children's bedrooms and the study, and the high windows in the owner's bedroom (the angling bedroom walls on the plans seem to indicate glass, but actually the openings are full-height louvers). The wide gallery to bedrooms was planned to give southeast light, and to allow an indoor play area for the children, where also their mother could sit to watch them in the southeast garden. In general, then, the form of the house and its space divisions were planned to face the view, get the sun, and turn away from the roadway.

Hedrich-Blessing Photos

The house presents four full glass panels as a gesture of invitation toward guests approaching the entrance loggia, and a few living room windows face the road and the neighbors; otherwise it turns the other way, facing a view and a sun-bathed garden. It also turns its back on the northwest winds that blow so fiercely in the winter; bedrooms (not shown) have only louvers on this side

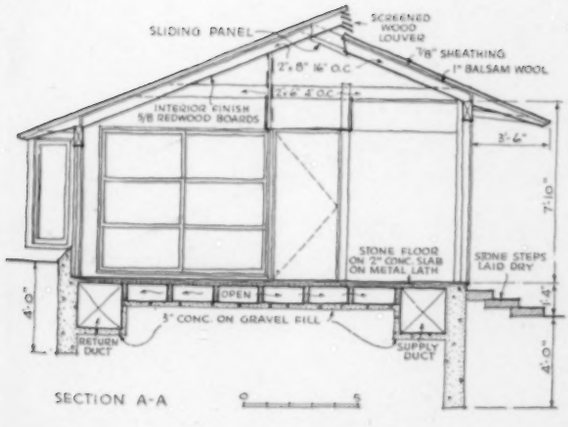


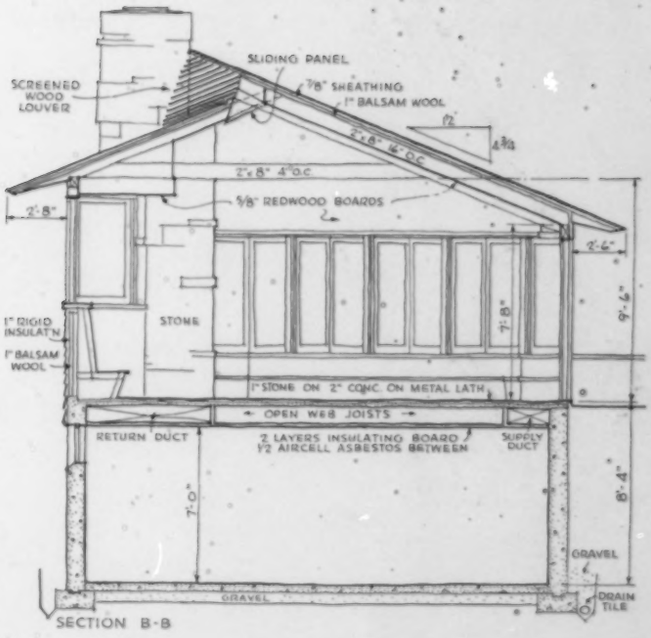
Views from the other side (southeast) show large glass areas to bring the sunshine into the bedroom wing and the living room, with overhangs to ward off blazing summer rays. The several doors throw the children's play area in the bedroom wing open to the outdoors



Warm-Air Radiant Heating in Floors

Heating is by a warm-air, radiant-floor-panel system. Really there are two different distribution systems, one for the basement-less portion, another for the living room area over the basement. In the bedroom wing there is a double concrete slab floor system, with air circulating between the two slabs. The split pavers that form the floor surface rest on a 2-in. concrete slab which is supported by brick air baffles resting on a slab laid on the ground. The air space between upper and lower slabs is 8 in. high. Supply and return ducts, however, are larger, being tunnels approximately 24 in. square (see section, opposite page). In the living room wing, heated air is circulated between the floor and the hung plaster ceiling of the basement. Living room floor construction is the same as in the bedroom wing, but here the slab is supported on open-truss steel joists, through which air circulates. Supply and return ducts, with an arrangement of baffles, controls air flow for even distribution. For extra cold weather, supply registers have been installed to permit direct warm-air entrance of the rooms. S. R. Lewis was consulting engineer

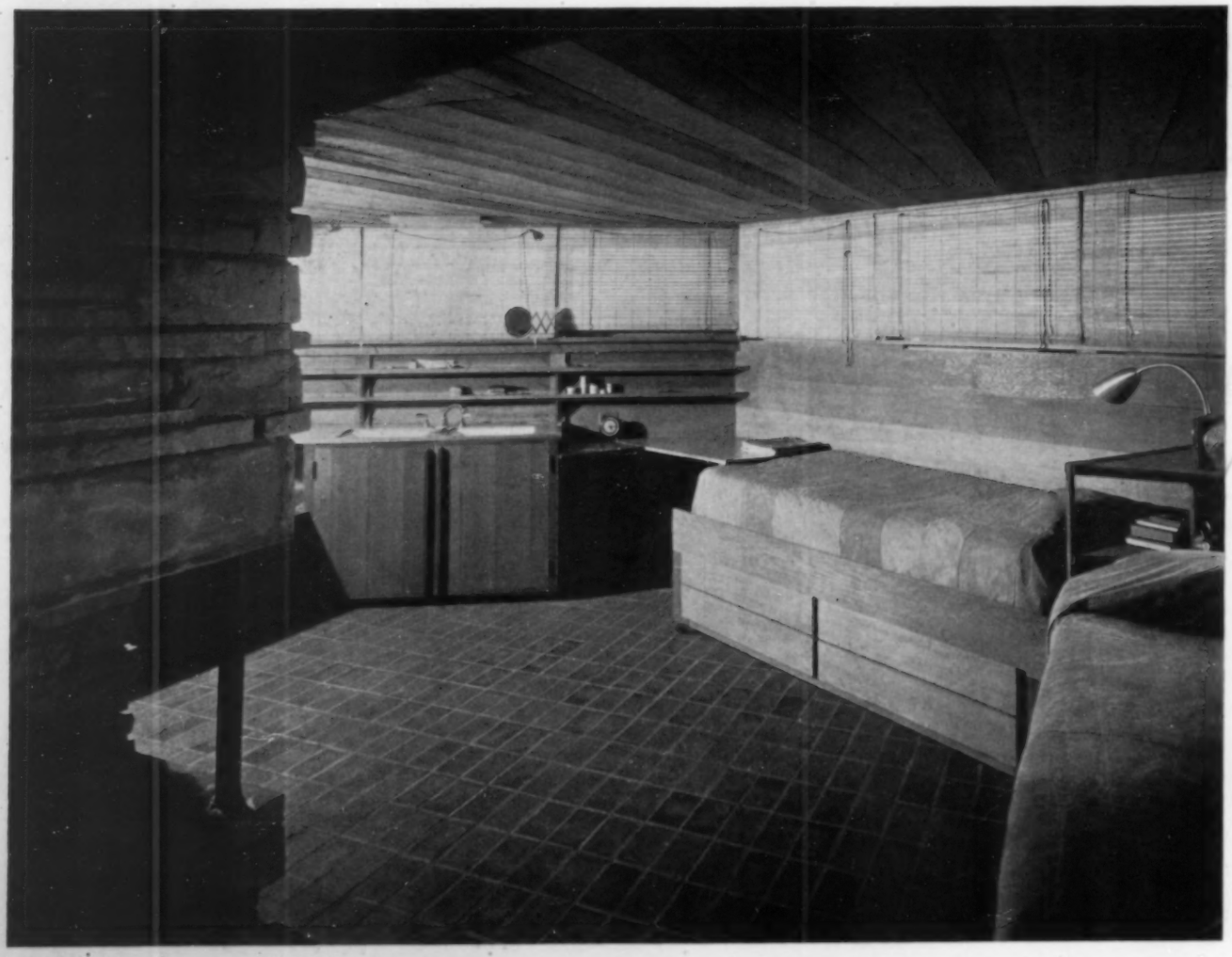




Ventilation louvers shown on the sections run the full length of the bedroom wing, similarly in the living room portion and kitchen. They are screened, and, while open in the summer, may be closed against the winter winds by sliding panels

Left: bookshelves and cabinets line the blank wall of the living room. The entrance hall in the background has sliding doors opening to the garden, is designed to be completely open to serve as a breezeway in the summer, also as a sheltered porch

There is very little movable furniture in the house; practically everything is built in. In the owner's bedroom, below, the outside walls are completely occupied with built-in furniture—beds, bedside furniture, cabinets, and window seat and wardrobe



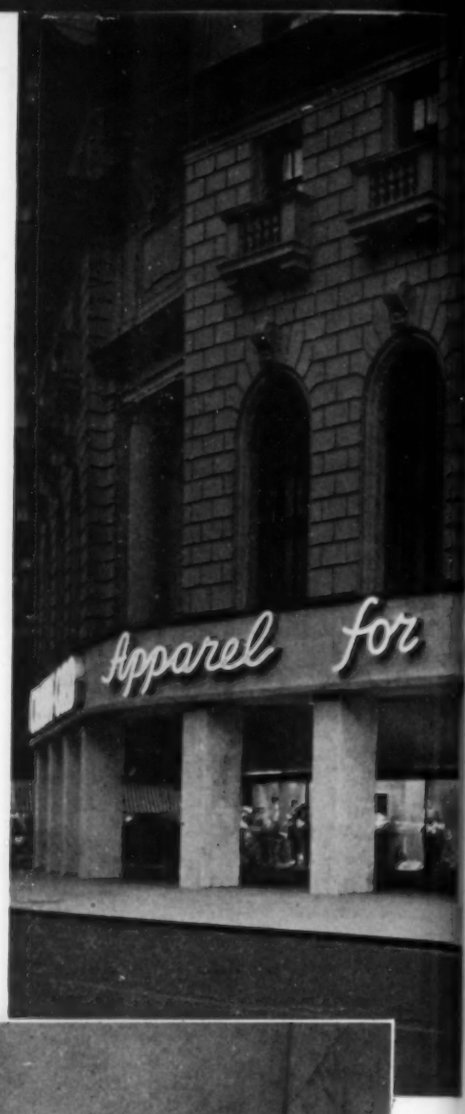
Wood walls, ceilings and soffits inside and out are rough-sawn redwood. Exterior finishing nails are Monel metal. Roof shingles are cedar. Sash, frames and shelving are redwood. The sliding doors to wardrobes are redwood plywood. Large sheets of glass are single thickness, quarter-inch plate. Other glass is ordinary double strength. All finished hardware is brass. Floors throughout the main floor are red split brick pavers. Exterior terraces are red sandstone. Chimneys also are of red sandstone. Lighting fixtures are flush wood and glass

MIRACLE (AND MECCA) ON 34th STREET

NEW HEADQUARTERS FOR CRAWFORD STORES

Hotel McAlpin, New York City

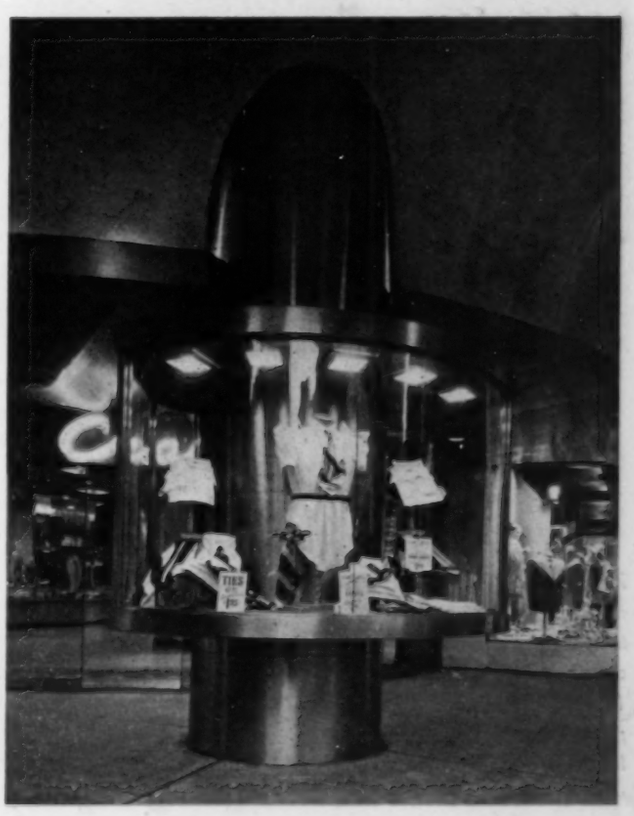
Kahn and Jacobs, Architects



Ben Schnall Photos

FIRST, to insure free rein in making this a fount of prestige for all the Crawford clothing chain, the owners secured control of the Hotel McAlpin. Then, almost every existing activity of basement and ground-floor, on three street fronts, was reorganized to make way for the marble arcade and block-long sweep of selling space. Below the ground line, hotel kitchens, bakeries and machine rooms were reshuffled to accommodate the immense spaces for alterations and repair, and for storage of clothing awaiting these operations. On the Broadway, 33rd and 34th Street level, not only did a number of smaller, unrelated shops have to be moved, but many of the hotel offices and functions cleared out and set up elsewhere.

Provision of the arcade was originally much debated, on grounds that it would eat up such a quantity of valuable selling footage. But study of the photo at left, though taken on a Sunday afternoon, gives some idea of how stimulating this feature is to trade. Large portions of the usual Broadway throng are shunted naturally off the sidewalk into the arcade, to discover themselves caught in fascination by serrations of the continuous show window. Moreover, the new street-level façade, store, and associated features such as bar and restaurant (treated separately on pages 107 to 109) have given considerable lift to straight hotel business at the McAlpin.



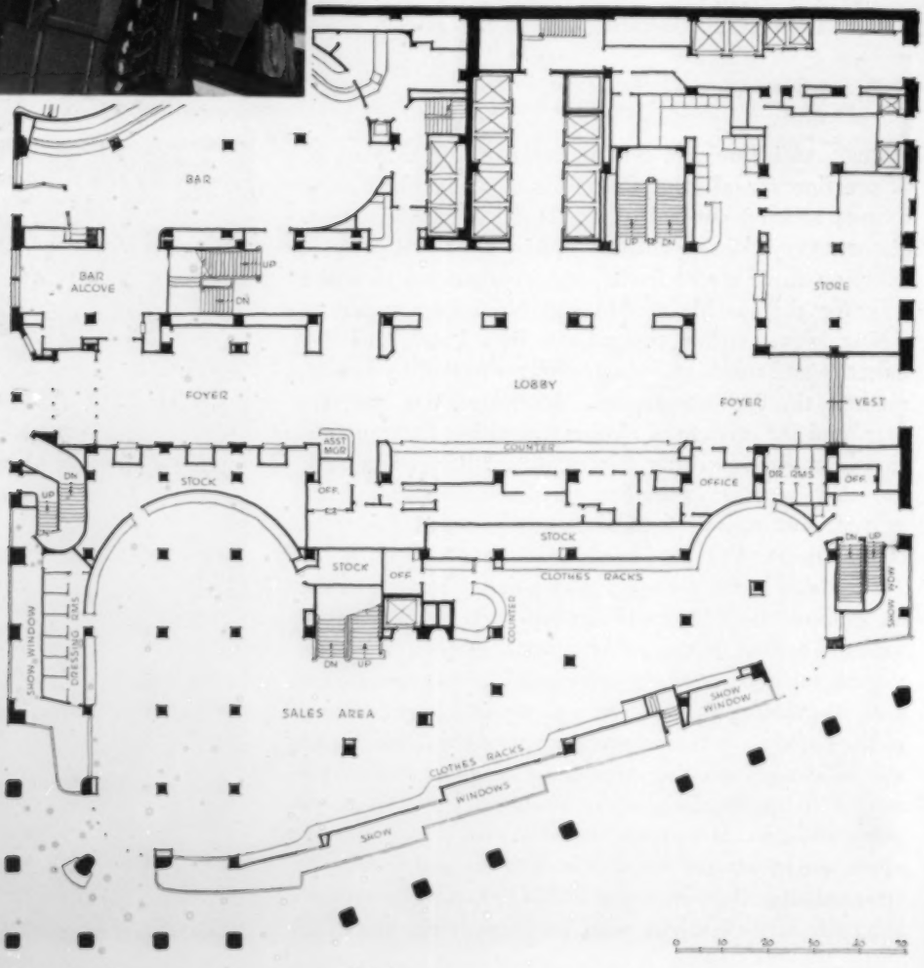
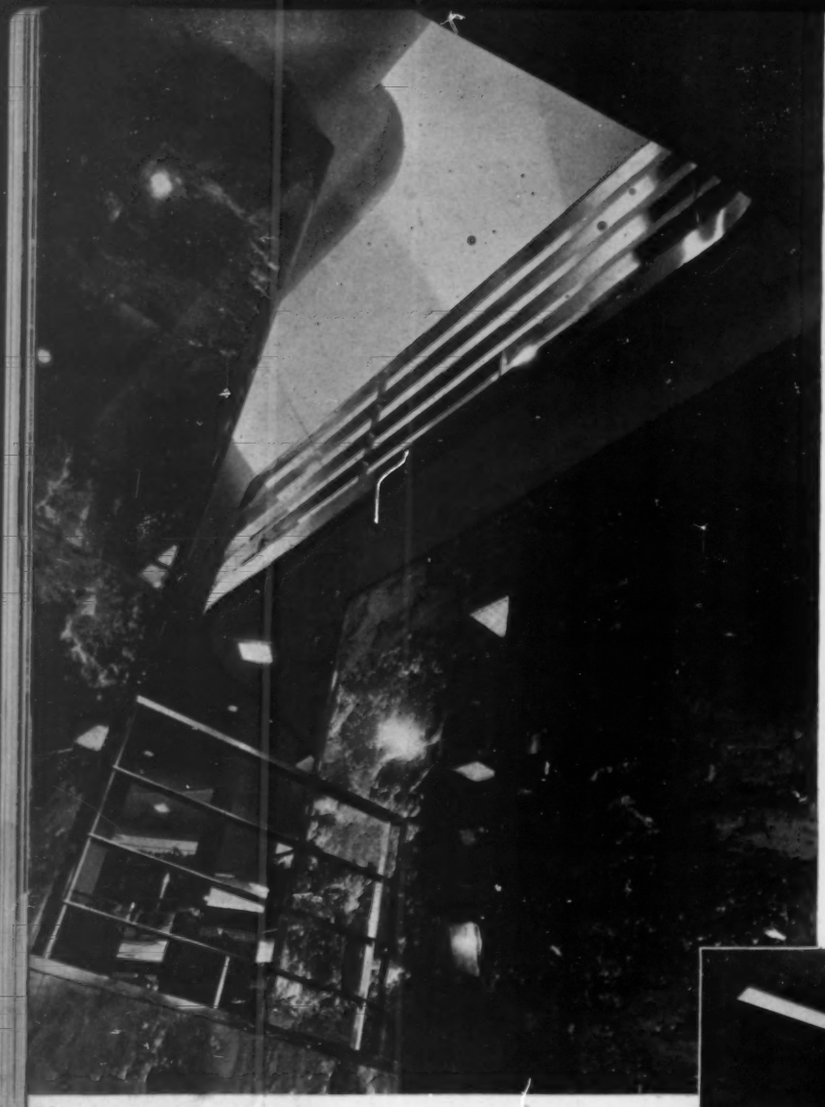
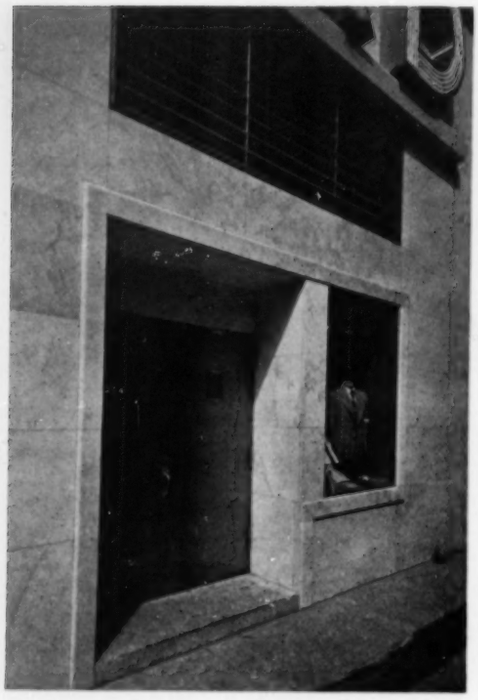


Photo above, left, is balcony of mezzanine as it appears to customers entering by main door, off corner of 34th St. and Broadway (lower left in plan). Smaller photo is view from opposite end looking along the Broadway wall toward main entrance

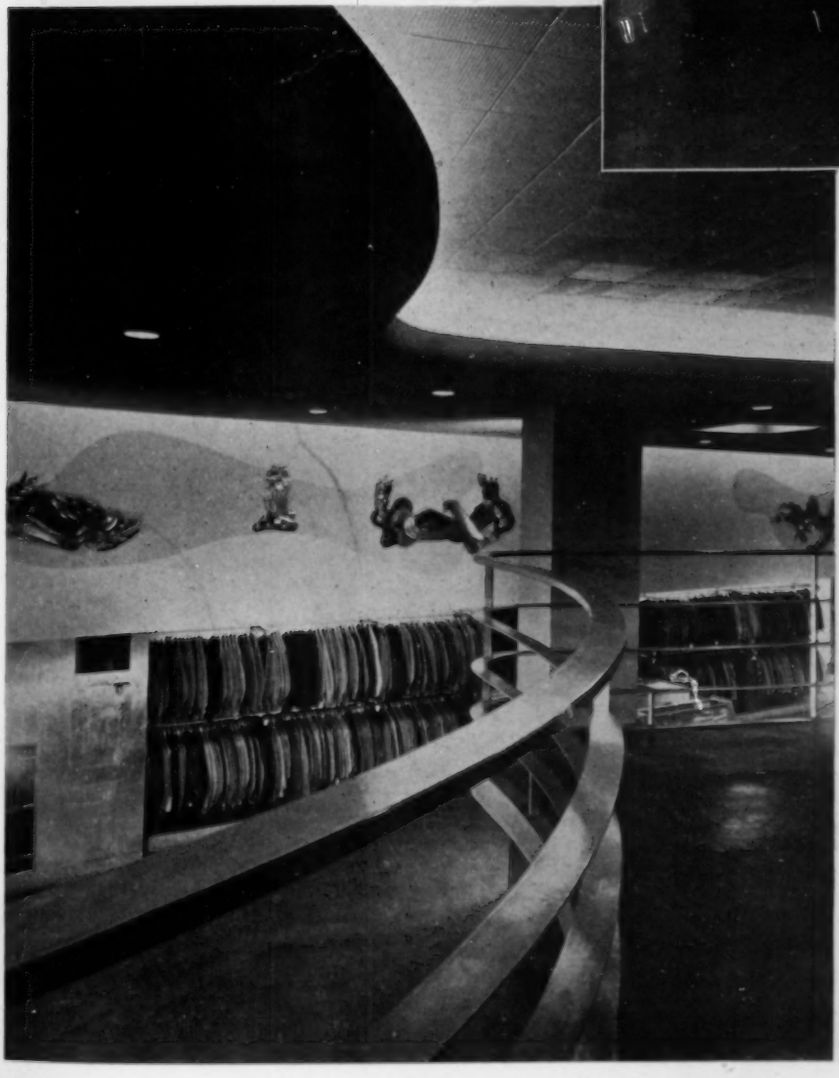
Photo above is general view immediately after passing outside pylon with show case (see photo, page 91, lower right), and through the clear-glass main-entrance doors. To secure proportions of height necessary for this sweep of nearly 200 ft., the architects used slide-rule ingenuity to minute inch fractions in reducing the depth of their dropped plaster ceiling to absolute minimum. Not only does it conceal air conditioning ducts and conduit for the store's incandescent "pots" and fluorescent panels, but also pipage essential to hotel services. They feel certain they "couldn't have gone a quarter inch higher." Columns, of course, had to be circumvented, since they bear all the weight of the many hotel floors above. In plan at left, forward stock spaces were obtained by moving hotel functions originally therein, some to regions in upper right hand corner; some, such as the room and registry counter, were simply pushed forward into the lobby. For Bar region, in plan, see pages 107 to 109



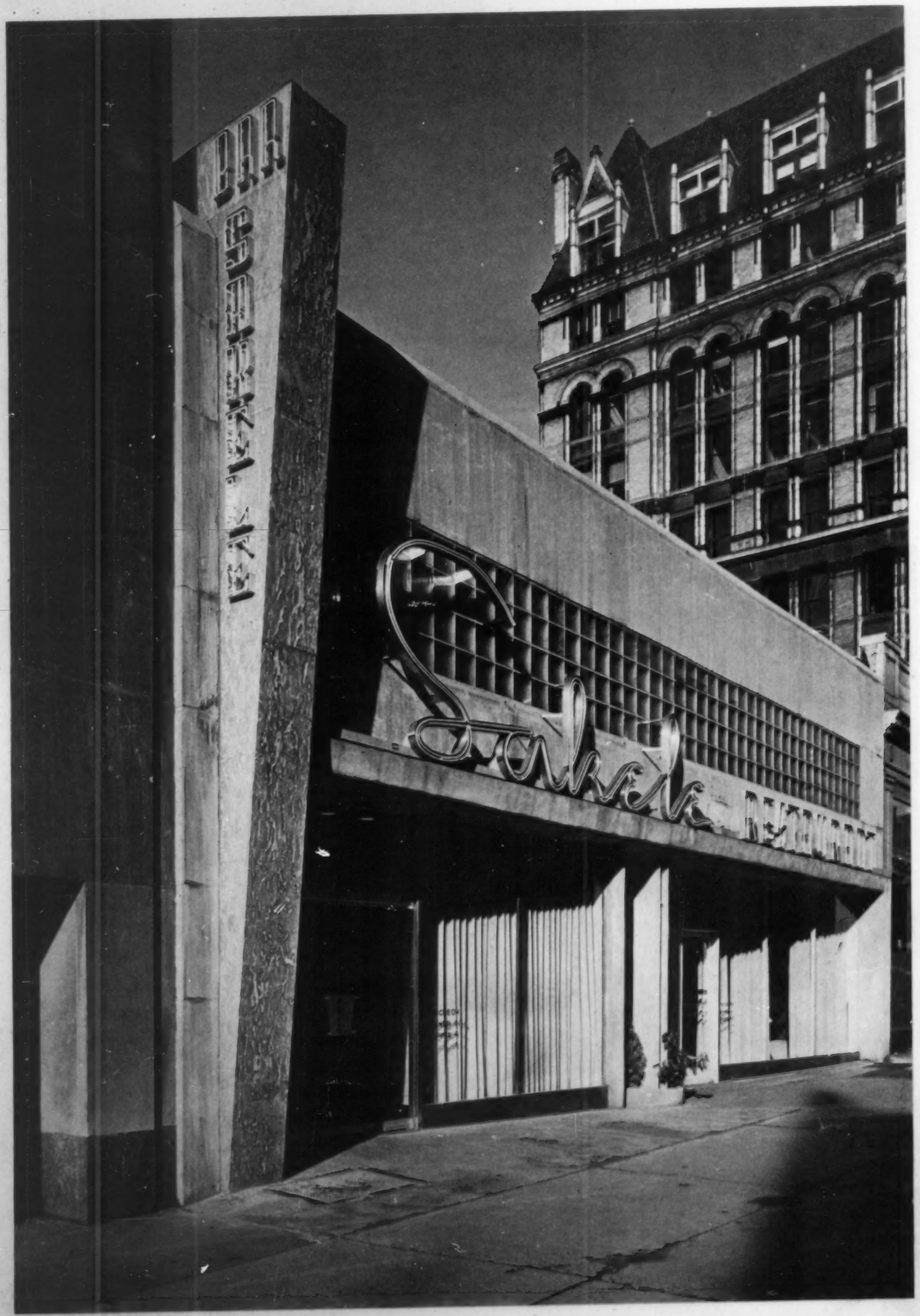


Solid heart of the store is this enclosure of stairway and elevator in Appalachian marble. View above is from landing between basement and main floor

Display window at right of elevator is for special merchandise attractions. Above, right: a similar device at right of service doorway on 33rd St.



Universality of Crawford operations is expressed in metal sculptures representing the four elements: air, earth, water and fire. Show window, flanked by fluted-glass panel in upper-right photograph, is one of three by which outsiders may look through into store, and window dressers enter the outside display areas



RESTAURANTS AND BARS

ARCHITECTURAL RECORD'S

BUILDING TYPES STUDY NO. 127

Ben Schnall Photos

ARCHITECTURE FOR EATING AND DRINKING

By Herman H. Siegel

RESTAURANT: "An establishment where refreshments or meals may be procured by the public; a public eating house" — Webster. Actually it is a generic term embracing all kinds and manifestations of "public eating house." However, the word may also convey the special sense of a more or less elaborate type, where the service is predominantly by waiter or waitress.

At points where fashion and luxury become clearly subordinate to the customer's budget of time and money, we shall make further type differentiations as: Cafeteria, or predominantly self-service type restaurant; Luncheonette, or predominantly counter type restaurant. There are also such sub-types as: Drive-in, *or roadside restaurants (see* ARCHITECTURAL RECORD, *Sept. '46, pp. 99–106, for detailed treatment);* Oyster Bars, Ham 'n' Eggeries, Hamburger Heavens, *and other similar forms of speciality service.*

These sub-types, aside from their special functional requirements, involved chiefly the same planning and design considerations to be treated here under the primary classifications. Such pseudo types as "Tea Rooms," "Rathskellars," etc. differ mostly according to "atmosphere," and not essential function.

BARS, whether independent services or integral features in all the foregoing restaurant types, vary chiefly in degree rather than kind, and are treated in a comprehensive section.

LIGHTING and KITCHENS, foremost factors for commercial (and esthetic) success in all types, are given separate analysis.

THE definition of *Restaurant* might really be extended to bring it under the broader concept of *Store*. For after all, restaurants of every type and sub-type are strictly in the business of merchandising food. The same fundamentals of planning and design are involved here as in any other selling operation — first, analyzing and organizing factors of receipt, storage, processing and delivery of the goods for sale, in this case cookery and drink items; then, the attraction, distribution, comfort and convenience of customers.

It seems to me, from the point of comparative advantage in experience with both, that the principal difference for the architect, between restaurants and stores in the more usual sense, is that there are more

Photos left, right: Sakele's, Brooklyn. Top: Tropical Gardens, N. Y. City. Herman Siegel, Architect; Ernest D. Rapp, Designer. S. Y. Construction Co. were general contractors for Sakele's

This globe, one of three in Sakeles' main dining room, gives general light, relieves a disproportionately high ceiling, and transmits ineluctable attraction to the glimpser from street

inherent complications in the former. Foremost among these are architectural-engineering problems in the nature of the factory production line. This crucial element of food "manufactury," in planning kitchens in relationship to other restaurant areas, is discussed at length on pages 119 to 121.

The Restaurant General Plan. Every restaurant operation is of course unique, even among chains, in that it follows to some extent its own methods and notions in catering to a predominant client type, existing for a particular location. However, it may be said that *all* restaurants are subject to a general plan, almost always involving consideration of the following basic elements: *entrance areas*, *dining areas*, *kitchen areas*, and frequently *bars* and cocktail lounges.

Entrance Areas: *Exteriors, Entrances and Anterooms.* In all restaurant types — down to the most frenetic luncheonette — exterior appearance, as a first consideration, should imply the particular operation's essential character. Within this figurative limitation, elements of the exterior must then *attract*, *advertise*, and *compel* to the entrance, and then inside, the patronage desired. Further, and within *material* limitations, the exterior treatment must take in account the contingent nature of existing locations (a condition imposed on the architect in perhaps 75 per cent of cases). The restaurant front should be distinctive, *not* disharmonious, in its given surroundings.

As a possible example, I shall cite Sakeles' (see photos pp. 96, 97), where effort was made to achieve definite character and compulsiveness in the front, at the same time regarding it as a compositional element in a larger given setting. To an existing fascia of cast stone and glass brick, the marble pier was added as architectural background for vertical signs advertising name and function. Within a new plaster surround, large glass areas with stainless steel trim were put at glare-reductive angles.

From this example, I believe it is possible to illustrate another cardinal tenet in treating the front. Restaurant windows should expose, where possible, to potential patronage outside, all manners and varieties of inducement to come and dine within. Among these is the spectacle of diners already on location, enjoying appetizing food amid conducive surroundings and brisk service. Perhaps this exposé technique is less applicable to restaurants (in the restrictive sense) of the larger and more fashionable type; certainly, it is less so in cases such as Sakeles', catering not so much to a transient trade which must be induced, as to a more or less repetitive clientele. Sakeles', however, will serve to illustrate the point. Note in the photographs that behind the windows of the right-hand (dining-area) half, the curtains are partially open, to disclose not only a suggestive view of the diners and services within but also of such compulsive internal features, projecting their attractions through to the outside, as the globe of light illustrated on this page. Note also that the curtains on the left-hand, or bar-area, side are tightly drawn, permitting no certain disclosures either of internal features or of imbibing patrons (about which nicety more will be said later). Field's Restaurant, illustrated on this page, shows these principles carried architecturally further.

Exterior treatment should reflect restaurant *character*, as we have shown, and as character varies further according to *type*, from the large restaurant with its

Field's, New York City. Large restaurant window (left) discloses features within; discreet bar window (right) discloses mostly bottles. Separate bar entrance, far right. (Siegel — Rapp)

Ben Schnall Photos

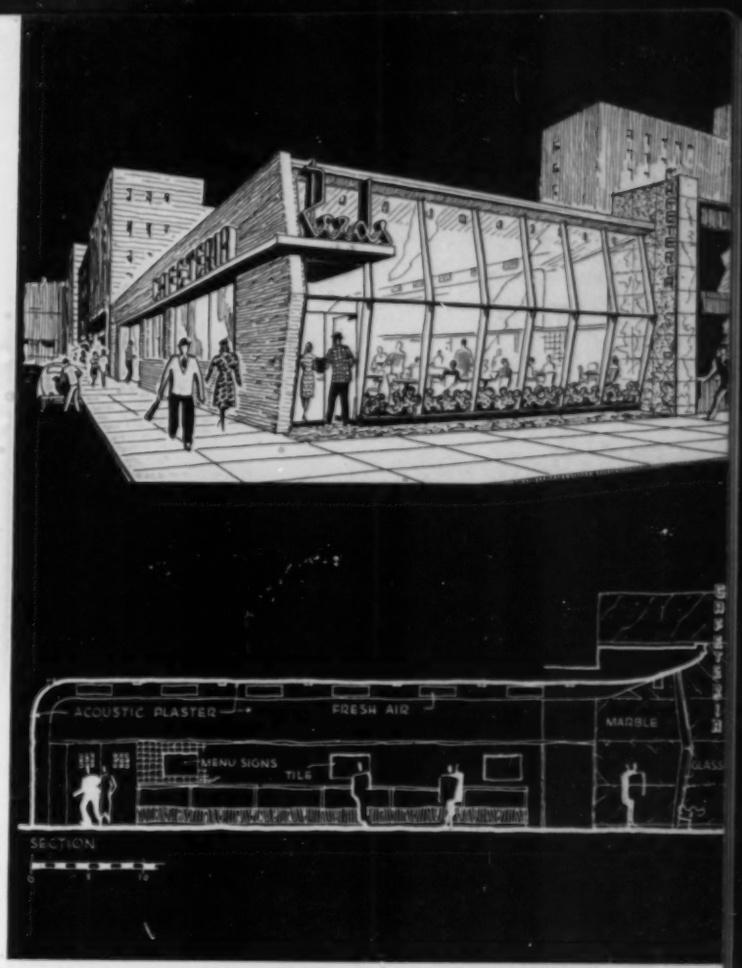
air of veiled dignity — perhaps even seclusiveness — through the lesser *chi-chi* varieties, down to the cafeteria and luncheonette, we find the tendency in fronts toward more and more openness and forthright disclosure of what goes on inside. *Chockfull o' Nuts* is a widespread example of a luncheonette chain disclosing its *all* to street visibility. (See also page 116.) The completely open front of Reed's, a cafeteria illustrated on this page, is intended to show off the food-selection counter to outside appraisal, as a major inducement to enter in and partake.

The technique of bringing the actual service and even preparation of food out as far as possible through the show window is by no means confined to self-service and counter types. *Lindy's* and the *Brass Rail*, famous big operations in New York City, have contributed to the fad of refrigerated show windows, in which the displays of meat, fish, and fowl and vegetable vary according to season. Other forms of such display are the featuring of liquor, where the cellar is celebrated, or pastries, where baking is a house specialty. And then there are all the processes of hamburger, griddle-cake and do-nut making shown directly in the front window. Every one of the "glorifried" ham 'n' eggs served to patrons in the specialty sub-type houses of that name, are prepared in full view of the potential customer looking on from the sidewalk.

Entrances, the actual doors, obviously should be the operative climax of all the attractive and compulsive efforts put into the exterior as a whole — a flawlessly operating springboard to the inside. Architects generally, I should assume, are already enough aware of the many marketed possibilities in full or semi-glass doors, operating on gravity hinges, etc., and responding like gelatin to push or pull, that I need not enlarge on this point. However, I should like to emphasize that wherever possible, in my own practice, I plan separate outside entrances into bar and restaurant areas under one roof, as in Sakeles' and Field's.

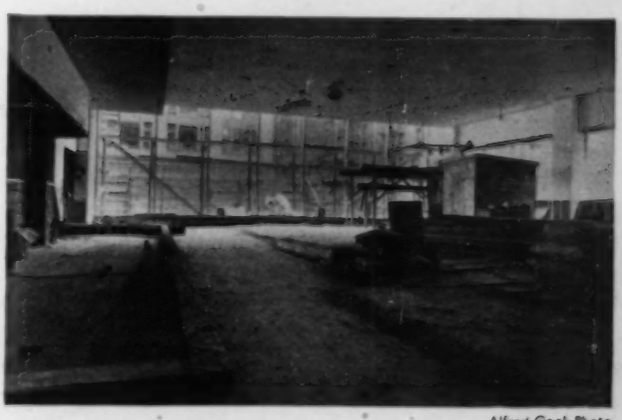
Anterooms. These areas will be strictly defined, of course, only in the larger operations, perhaps as foyers, vestibules, lounges, etc. In the less elaborate restaurant types, they tend to become simply open space allowances for circulation and orientation of entering and departing traffic; and in these respects must be carefully calculated, according to seating capacity and internal circulation, to avoid conflicts detrimental to trade.

Checkrooms and cashier-counter fixtures in these spaces should be unmistakably evident, but, if possible, not *obtrusive*. Wash and retiring rooms for customers are sometimes provided in anteroom areas. Preferably these facilities should be as close as possible to dining room and bar, certainly on the same level at least, although in many cases they are tucked up or down stairs to conserve essential service or dining space. This is an equilibrium that every architect must work out for himself in each particular situation.



The design of Reed's Cafeteria, New York City, is intended to give theatrical starring to its biggest selling feature, the counter, with large areas of glass on both street sides making complete disclosure of the interior. Self-service and counter-type operations make a particular practice of this, as if to emphasize, with all their business and bustle, that no dirt can ever gather in hidden pockets and corners, as the observer from outside can readily see for himself.

In the section above, note use of acoustical material, especially functional in self-service operations where customers handle trays with less finesse than professional bearers. Counter back-wall is of tile for cleanliness. Fresh air, circulated from outlets indicated, returns to exhaust ducts over service counter (see sketch page 121). Marble slab adds front distinctiveness, demarks bar and dining areas (see plan page 106). Floors will be green and white terrazzo. Photo below shows progress as of June 6. Siegel, Architect; Rapp, Designer; Chase Construction Co., General Contractors. Sketches by Ernest D. Rapp.



Alfred Cook Photo

Alfred Cook Photos

Entrance-Area Materials and Equipment. A salutary trend here, I believe, is away from such veneers as porcelain enamel, and even architectural glass, toward more use of brick, terra cotta, cast stone, terrazzo and marble, the suitability and proportions of each in any application to be determined by existing building relationships and the intent and character of the particular operation. Where the novelty technique in exterior expression involves refrigeration — as in Gallagher's Steak House, with the raw primary product displayed in the front window — consideration must be given to impervious show-case linings such as tile, Carrara glass or marble. And, of course, the surrounding clear glass areas must be triple-glazed, or otherwise adequately insulative.

In designing windows for liquor display, remember that these items are highly subject to pilfer, and must be safeguarded in some form of secure enclosure.

Dining Areas. Here the architect frequently finds himself using his persuasive utmost to bring the owner down from dreams of numerical seating maxima to realistic figuring on the number and types of seats most *effective* for his kind of business. I believe that in any kind of operation (excluding the strictly counter-seat), so-called "Pullman booths," used entirely, will accommodate more customers than any other seating method. This solution, on the other hand, is obviously static and uninteresting and does not, in my opinion, provide an *effective* long-range maximum. Furthermore, the architect, in working with the owner on the seating question, must continually be thinking of relationships to kitchen-area capacity, and to circulation allowances for customers and service between the seat and table combinations finally adopted. When, within these limitations, a workable numerieal maximum has been calculated, the architect must then persuade the owner to let him make it really effective with variations and combinations among Continental settees, Hollywood settees, Pullman booths, and ordinary tables and chairs, whether stock or custom built. *Seating variations* cannot be overemphasized and the most fortunate architect in this respect is the one whose site and given circumstances permit him to vary his dining-room floor levels, enabling patrons to look up or down at their public eating companions. (For example, see project illustrated on page across.) Such variations in level are useful also in planning to make dining areas expansible or contractible in keeping with fluctuations of custom.

Dining-Area Equipment and Materials. *Seating:* the very best booths and settees, I believe, are those constructed of hardwood frames, coil-spring seats topped with "air-foam" cushions, and spring backs with "air-foam" pads. A popular and serviceable covering is leatherette. Numerous plastics are now being used as covering material, but I believe they should be regarded largely as still experimental. Mohair fabric is sometimes used, but it is not nearly so wear-resistant nor easily cleaned.

Left: Glorifried Ham 'n' Eggs, N. Y. City; Samar Construction Co., Dsnrs. Below: Hollywood settees in Sakeles'; Continental settees, Pullman booths, along left wall; Rubber tile floor

Ben Schnall Photos

Left: plastic-top, chrome-pedestal table in Hollywood booth at Tropical Gardens. Curtain is glass fabric; floor, asphalt tile; color scheme, red, white and mahogany. Above: table tops in Field's are plastic "real wood." Certain table units here (not those in center, see left and right) illustrate the principle of "deuces," that is basic two-placers that can be almost endlessly combined, but do not permit space wastage by one or two patrons. Floor is asphalt tile; walls are mahogany wainscot. Below: restaurant project for Florida. Siegel, Architect; Rapp, Designer. Seating is on rising levels not only for variety and flexibility, but also for picture-window view. Arrangement for air conditioning outlet and intake system (see section) is considered close to ideal. Special sketches by Ernest D. Rapp

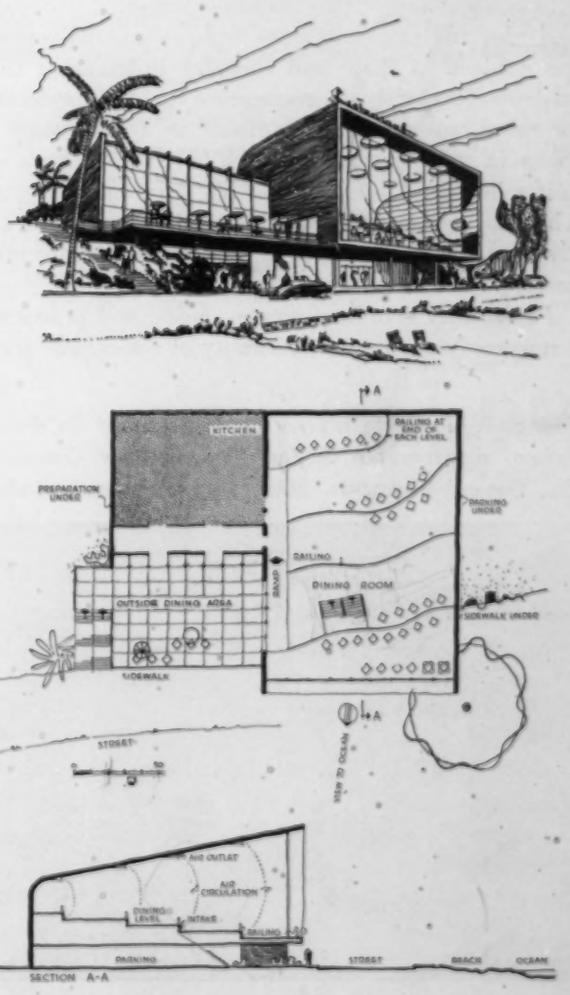
Settee and booth seats should be at least 18 in. deep and about 18 in. high. Standard booth width for one person is 26 in.; for two, 44 in. Back heights seldom should exceed 4 ft.

Chairs are preferably constructed of hardwood frames, with innerspring units covered by a layer of hair and at least 2 in. of "air-foam," then muslin and top covering. Backs and arms of chairs should be separated from seats to prevent débris collecting. Booth seats and backs, for like reason, should be removable.

Tables. Primary considerations here, as with other furniture, should be wear resistance and ease of maintenance. Hardwood tops are fine looking, particularly in "atmosphere" operations, but are greatly subject to stain and cigarette burns and require ceaseless attention. Thickness of hardwood tops should be between $\frac{7}{8}$ and $1\frac{1}{8}$ in. In restaurants making full use of table cloths, unfinished plywood tops are a possibility.

Probably for all-around utility, linoleum or plastic tops are the best specification, with the latter being particularly impervious to wear and easily maintained. The architect, however, should be certain of what's beneath the surface. Best foundations for both linoleum and plastic are $\frac{7}{8}$ to $1\frac{1}{8}$-in. plywood panels, with the top layer hardwood to prevent ripples in the surface covering. Lumber should be kiln-dried and the glue waterproof. Edging should be stainless steel.

Chrome-plated pipe *pedestals*, of about 4-in. diameter, are quite satisfactory. Four-legged tables are no longer much in evidence, because of the irksomeness of cleaning around them. *Bases* are preferably one solid piece, the



Ben Schnall Photos

heavier and broader, the more stable and desirable. Tables on *carpet* should have *heavy bases with broad spread.*

Floor coverings may be considered under two general headings: *resilient*, including asphalt tile (plain and greaseproof), plastic tiles, linoleum and linoleum tile, rubber tile, cork and carpet; *rigid*, including glazed tile, quarry tile, magnesium composition, colored concrete, terrazzo and slate. Bases for the resilient types must be smooth and even (nail heads and grains of sand will show up under rubber tile, blemishing the wax finish; uneven flooring will cause cracks in asphalt tile). A well-laid double wood floor is usually successful with resilient types; also, *smooth* concrete.

Asphalt tile gives long wear for low cost, and is much less subject to chair and table-leg indentation than linoleum. Obviously the greaseproof variety is preferable for restaurant use. It is available in a wide range of colors in three grades, of which "Deluxe" affords the best selection. Easiest obtainable sizes, currently, are 9 by 9-in. squares, and 9 by 4-in. strips for borders and divisions. Thickness of $\frac{3}{16}$ in. is recommended for wood bases; $\frac{1}{8}$ in., for concrete.

Plastic tiles give long grease-, acid-, and practically waterproof wear in a wide variety of colors, but are at present still hard to get in quantity. The resin types, in my experience, give best performance.

Linoleum is again available in many colors and patterns, and with burlap backing, the only type to be considered for restaurant use. It tends to disintegrate under standing water and excessive heat; in these respects the "lino tiles" (oil-bonded finish) are a major improvement.

Rubber tile, in my opinion, is the best looking and among the best wearing of all the resilient types. It is also a great aid in acoustical treatment.

Carpet, of course, is the richest appearing and most resiliently luxurious of all coverings, and the most expensive. In general, I might say that both wool and worsted *Wiltons* are preferable to *Velvets* and *Axminsters* where heavy traffic is expected. *Chenille* weaves are woven seamless up to 30 ft., in width, have great sturdiness, luxuriousness, and variety in color and design.

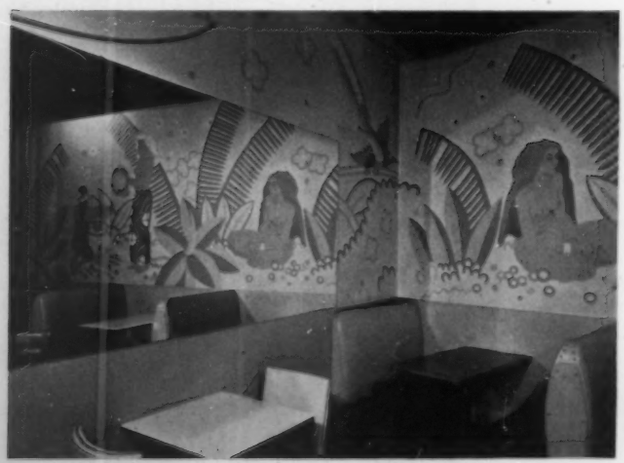
Quarry tile, among the rigid floorings, is practically a *must* for Tavern "atmosphere." It is extremely durable and easily cleaned.

Terrazzo is probably the most durable and effortlessly maintained of all materials, withstanding wear almost like solid marble. In addition, the marble chips can be "composed" in patterns and color effects. Size of the pattern squares is important; the smaller they are with more division strips, the better chance of contraction and expansion without cracking.

Almost all the foregoing flooring types are benefitted by faithful waxing, which seals the surface and helps maintain the original colors.

Wall-Finish materials to substantial degree may be considered as extensions of floor coverings, since many of these, like terrazzo and the various tiles, natural and synthetic, are used effectively in such application, particularly in self-service and counter operations. Also varieties of the table-top plastics are available, in special wall color patterns and "realwood" textures, for counter fronts and wainscoting. All of these materials can

Top: ceiling in Field's is of stone-type acoustical tile, fissured surface; draperies are by Dan Cooper; Adler Construction Co., General Contractors. Below: decorations and murals in Tropical Gardens were designed by Winold Reiss, executed by Imperial Painting Co.; Karl Egger was the General Contractor. Note in photo, right, the "deuce" principle in Continental settee



"take it" and are easily maintained, absolutely indispensable qualities along with "attractiveness" in restaurant specification.

For the fancier operations, hardwood ply paneling, varnished or lacquered, still rates high in withstanding time and abuse, though requiring frequent refinishing. This material, where curved surfaces are a factor, can be very costly and, in this respect, the flexible veneers on canvas or metal effect great saving. A newcomer among these (on metal) has the further advantage of flexibility without wood filler.

Acoustical materials are conditioned by legal restrictions in certain metropolitan areas; for example, in Class I buildings, fire-resistant materials must be used throughout; in Class III, 50 per cent of materials may be combustible, but not to exceed 3000 sq. ft.

Acoustical tile of the stone type comes in both plain and fissured surfaces. Paint (other than water-base) causes appreciable loss in sound-absorbing efficiency.

Perforated acoustical tile comes in both fire-resistant and combustible forms, in two thicknesses for varying conditions; can be painted repeatedly.

Perforated cement asbestos board with "rock-wool" or glass-fiber filler pads also can be painted.

Offending restaurant noises center at a frequency of about 512; any material selected should have a high sound-absorbing coefficient at this cyclic rate.

Air Conditioning, as a dining-area factor, is discussed under this heading in the kitchen planning section.

Above: front door of Tropical Gardens illustrates the principle in bar design of compulsive expression on the exterior, proclaiming but not disclosing the functions within. Below, left: bar in Field's is set apart from dining area by dropped ceiling and open fin-and-fluted-glass partition; dome lighting is cold-cathode

BARS

FORTHRIGHT disclosure in this department is definitely *not* in keeping, even where the service is offered in connection with a self-service restaurant such as Reed's (see page 99 and plan, page 106). Although prominent citizens may properly assert they "have nothing to hide" in occasional temperate indulgence, still they don't really like to do it on manifest exhibition. For this reason the exterior of Tropical Gardens (see page 97, as well as photo above), though striving for attractiveness and compulsion in line with principles for the restaurant front, has much smaller window areas, with curtains as a rule nearly drawn, to reveal very little to the street of the activities and personages inside. Still the front should express, as Tropical Gardens attempts, particularly in the doorway, the essential nature and character of the

Ben Schnall Photos

Sakele's bar front and stools are covered in a red plastic material, padded. Bar top, display frames and paneling are of Mexican mahogany. Ceiling is Burgundy; walls are a deep red, to give warmth and intimacy in an unusually spacious bar area. Above far end of the bar, note balustrade of mezzanine dining space

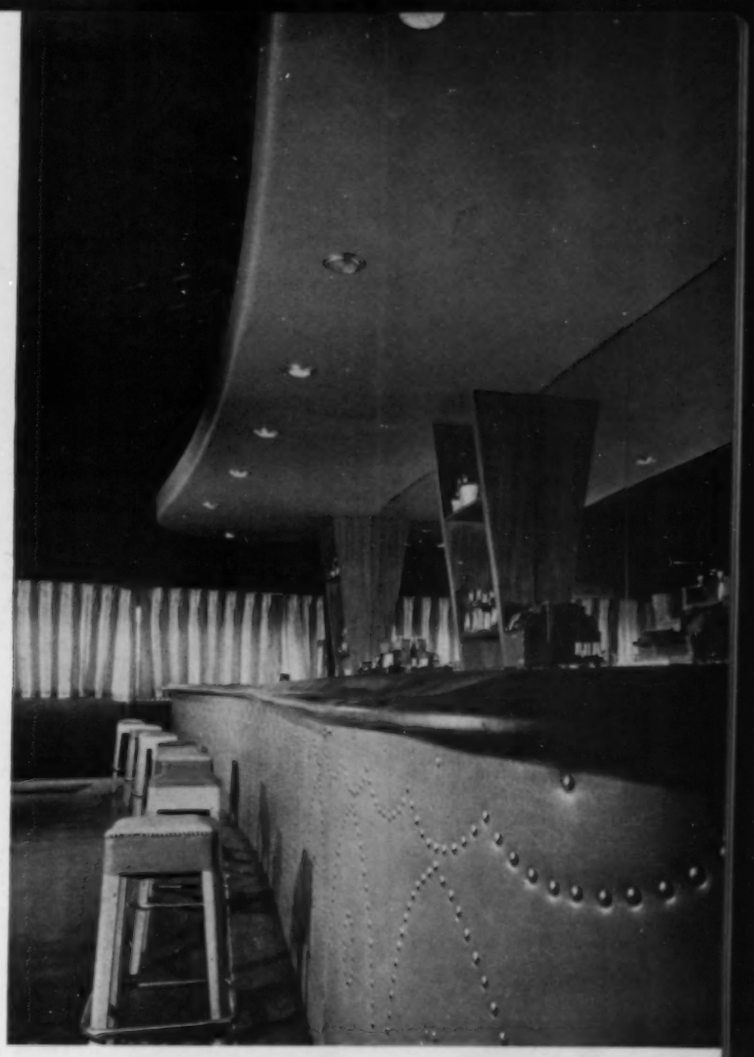
Below: checkered bar front in Solly Krieger's, New York City, is padded maroon and beige leatherette; top is Mexican mahogany. Step in lieu of usual bar foot-rest gives variety

In both Solly Krieger's and Field's Bar (below), glassware and bottles are given emphatic play as essentially decorative bar-area elements, with bullet-type spotlights focussing directly on them. Field's bar front provides a variation in use of striped mahogany plywood; top is a solid slab of Mexican mahogany. Dropped ceiling, which not only gives bar intimacy but conceals conduit and air conditioning ducts, is of stone-type acoustical tile with a fissured surface

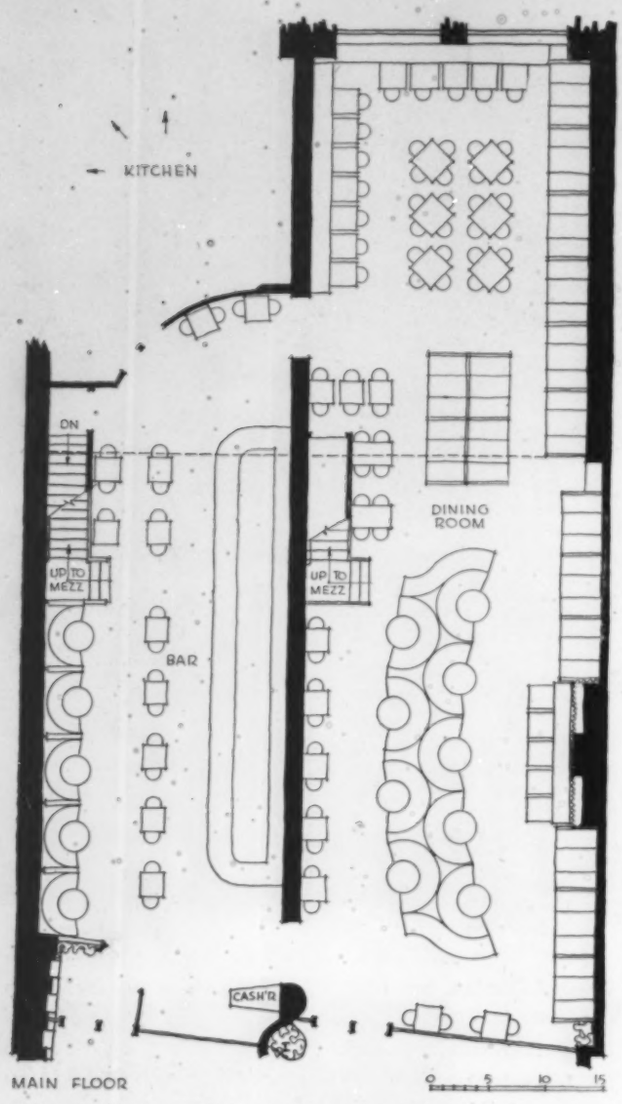
operation, projecting all possible inducements to make the customer enter.

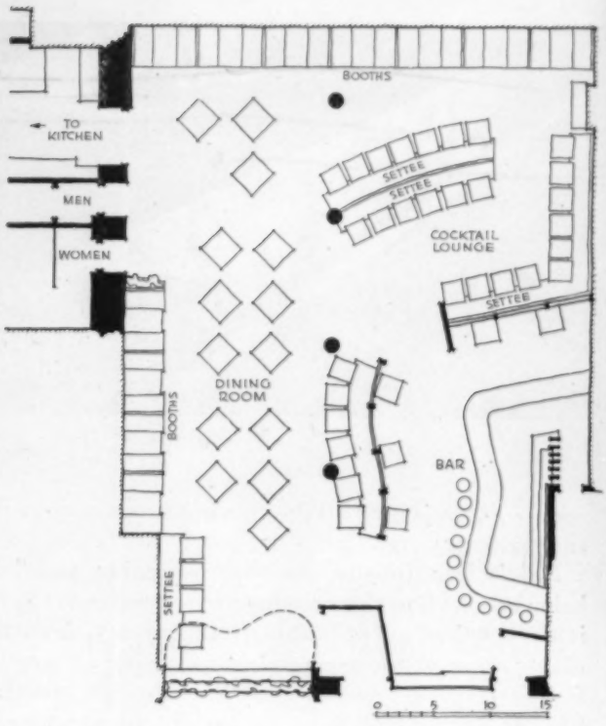
Field's Bar (photos on page preceding and left, below) shows how this area may be sequestered, to give it the required air of intimacy and privacy, from the dining areas, at the same time maintaining all possible feeling of spaciousness in fairly close overall quarters. Sakele's Bar (photos, left), a genuinely spacious area, is separated from the main dining room (see pages 98 and 100) by an existing structural wall. Still, in this large space with a high ceiling, the essential feeling of intimacy is sought through use of warm dark colors and subdued lighting.

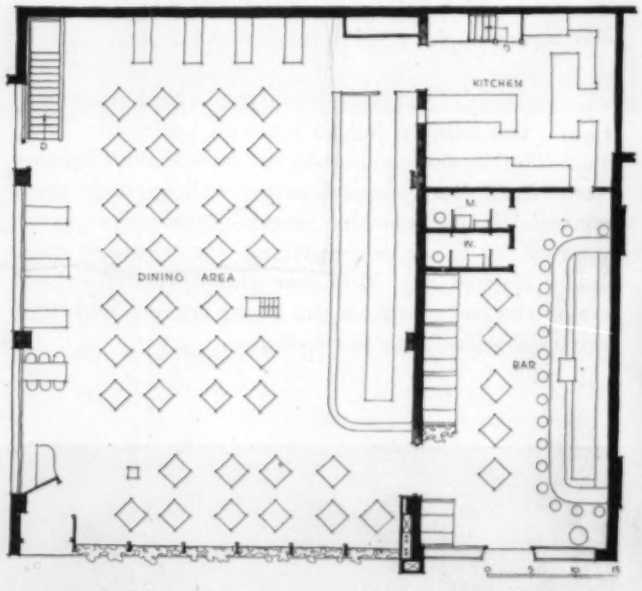
Ceiling height was also a problem in Tropical Gardens (right), this being a full 16 ft., with walls only 20 ft. apart. The bar canopy, in conjunction with cove lighting over Winold Reiss's mural on the wall opposite, most economically reduces this ungainly dimension to an apparent 10 ft., with everything above almost completely blacked out. Moreover, this device effectively sets off the bar area from the dining regions, with food here a subordinate service to liquor.



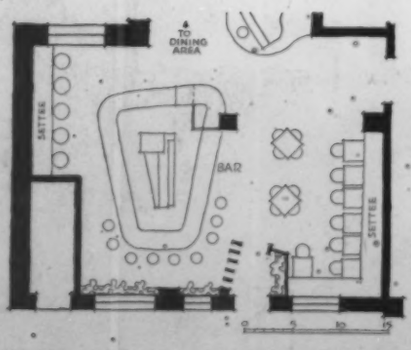
Tropical Gardens bar front, directly above, is red leatherette with mahogany top. The same materials were used on the bar of Lottie's Dogwood Room (below, left), New York City, where the problem was to provide an intimate new bar in an existing room with a set "atmosphere." This was accomplished by a suspended ceiling and special lighting fixtures in the domes, similar to "pin points," for low intensity. Photo top, left, is of service bar at Cafe Wienicke, New York City; patterns are linoleum cutouts on plywood. Below is the Wienicke patron's bar. Siegel, Architect; Rapp, Designer, for all jobs on these two pages

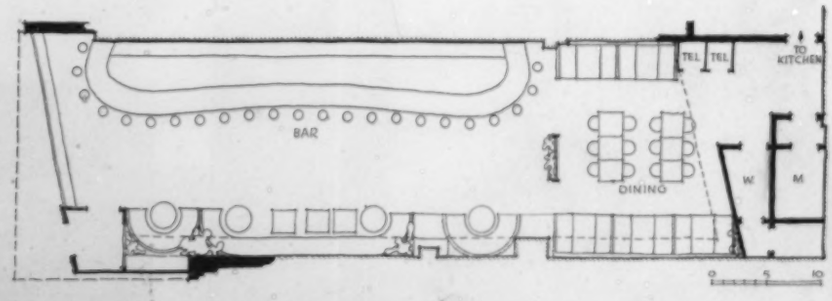






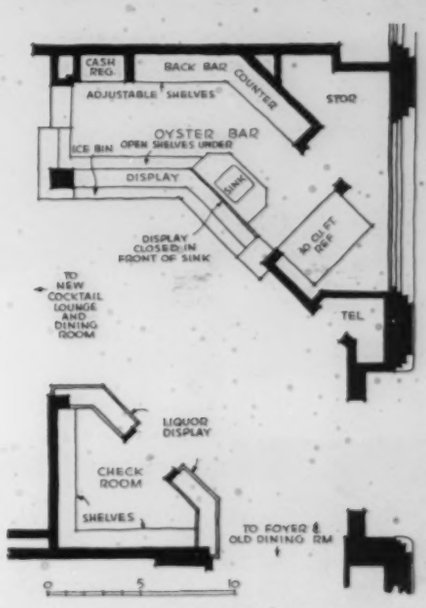
Plan of Sakele's, directly above, shows bar and dining areas demarked by existing wall. Dotted line indicates mezzanine with two dining areas especially adapted for private parties. Rear portion of main dining room can be screened off during lulls. Bar and dining areas in Field's, upper right, though more closely associated, are still distinct. Plan of Reed's Cafeteria, right, depends largely on relationship of counter to kitchen





Left, awkward arrangement of existing columns had to be overcome in providing intimate bar with hung ceiling for Lottie's Dogwood Room. Above, plan of Tropical Gardens

Moulin Studios Photos



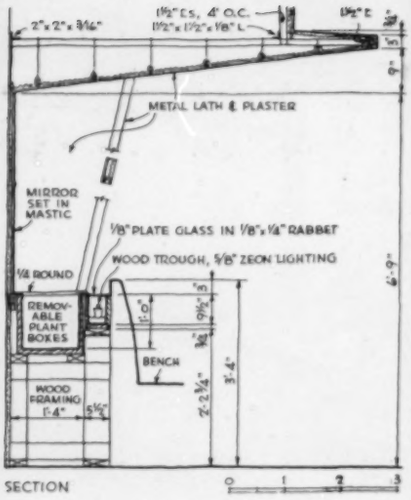
NEW "OUT-OF-DOORS" CAFE OYSTER AND LIQUOR BARS

Grison's Steak House, San Francisco

Hertzka & Knowles, Architects

TAKING space from two adjoining shops on Pacific Avenue, the architects have added, to the facilities of this renowned steak-and-chop house, new sea food and liquor bars, a cocktail lounge, and dining room giving the illusion of an out-of-doors café, with its vine-covered trellis and murals suggestive of Palm Springs. The problem was "to provide attractions for new customers, without frightening away or offending old trade."

Walls are knotty pine, stained dark; covering suggesting brick was designed by Van Luit. Ceiling is knotty pine and acoustical board, painted blue. Display case of oyster bar is copper and glass, with blue background wall on which are mounted crab and oyster shells gathered from local beaches. Top of cocktail bar is Scotch wool-plaid, made impervious to burns and stains with plastic impregnation; trim is copper. W. Adrian was Engineer; Elizabeth Banning was the Color Consultant.



Hedrich-Blessing Photos

NEW HORIZON ROOM CONTINENTAL HOTEL

Chicago, Ill.

Holabird & Root, Architects

In providing new horizons for this bar and restaurant, the architects have carried the mirror technique to points of unusual refinement. In the main dining area (photo at top), primordial creatures are depicted directly on the glass, set into a mural of their natural habitat under a broad overhang of plaster canopy. The motif is echoed in the bar, where the canopy has less formality, and jungle vegetation flanks a mirror left clear to receive the images of stool-top patrons. A three-step descent reaches the interconnecting dining area.

Front of bar is a field of padded black patent leather, against which are set 2-in. yellow-leather buttons. Bar top and back-bar working surfaces are plastic. Base is black and white terrazzo with brass dividers.

BAR AND RESTAURANT FOR HOTEL MC ALPIN

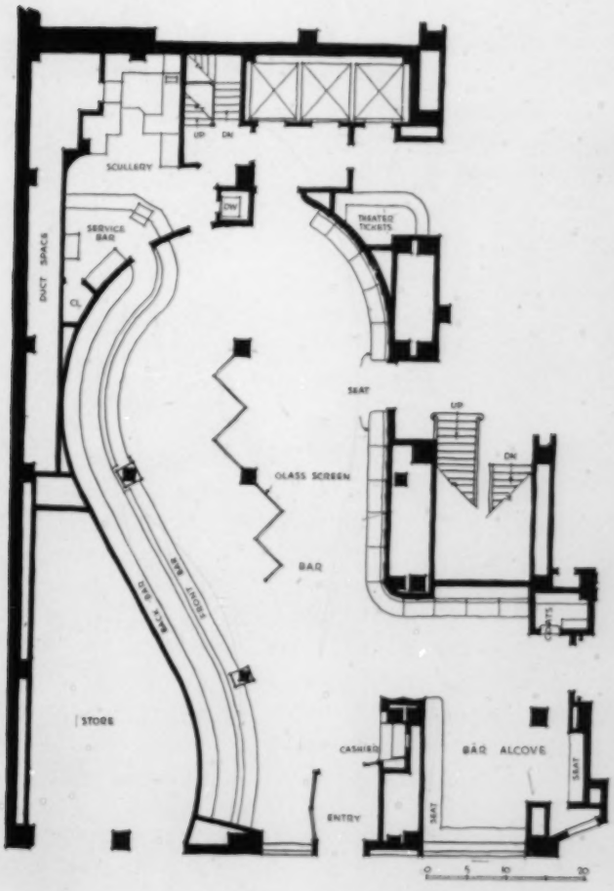
New York City

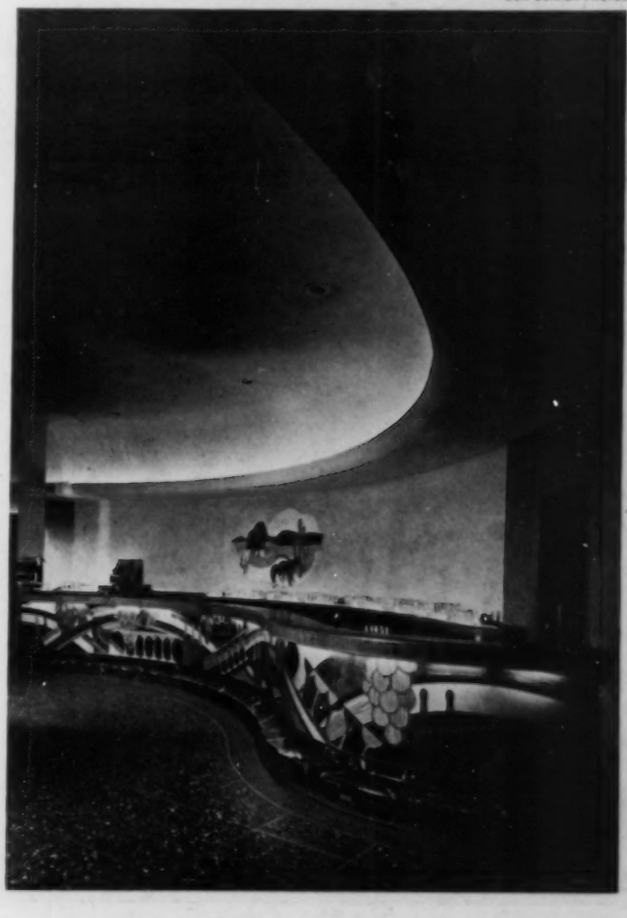
Kahn and Jacobs, Architects

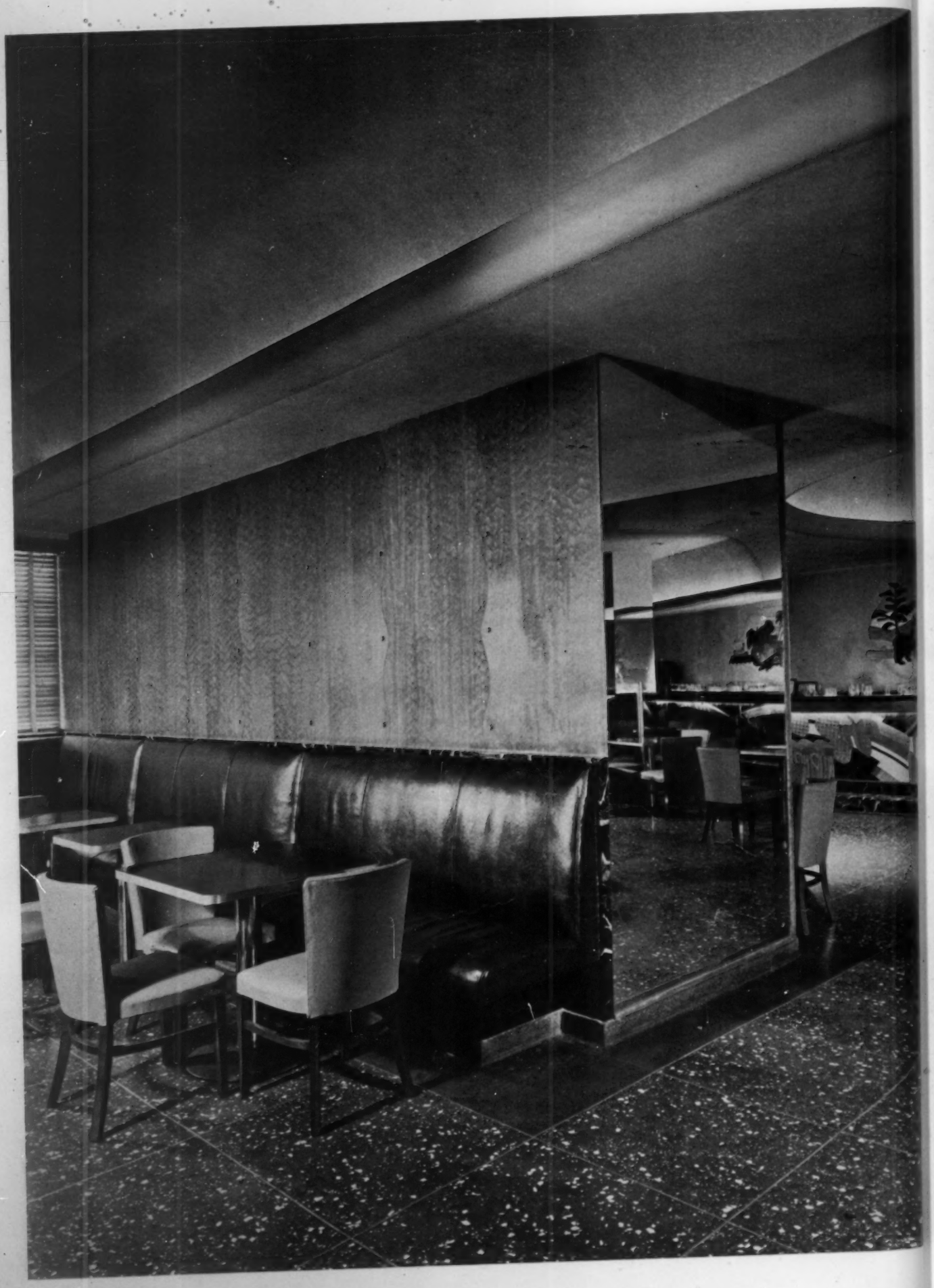
PLANNED and carried out as part of the major overhauling given to the McAlpin's entire first floor — to receive the Crawford Clothing chain's new headquarters store and arcade (see pages 90–95) — this bar and restaurant has given immense lift to the hotel business. Major feature is a 90-ft. serpentine bar, with a front of wood intarsia by Hildreth Meiere. Back-bar murals of glass-and-marble mosaic, representing the nation's four principal geographical regions, are also by Meiere. Michael L. Radoslovich, architect in the office of Kahn and Jacobs, coordinated all the McAlpin renovations.

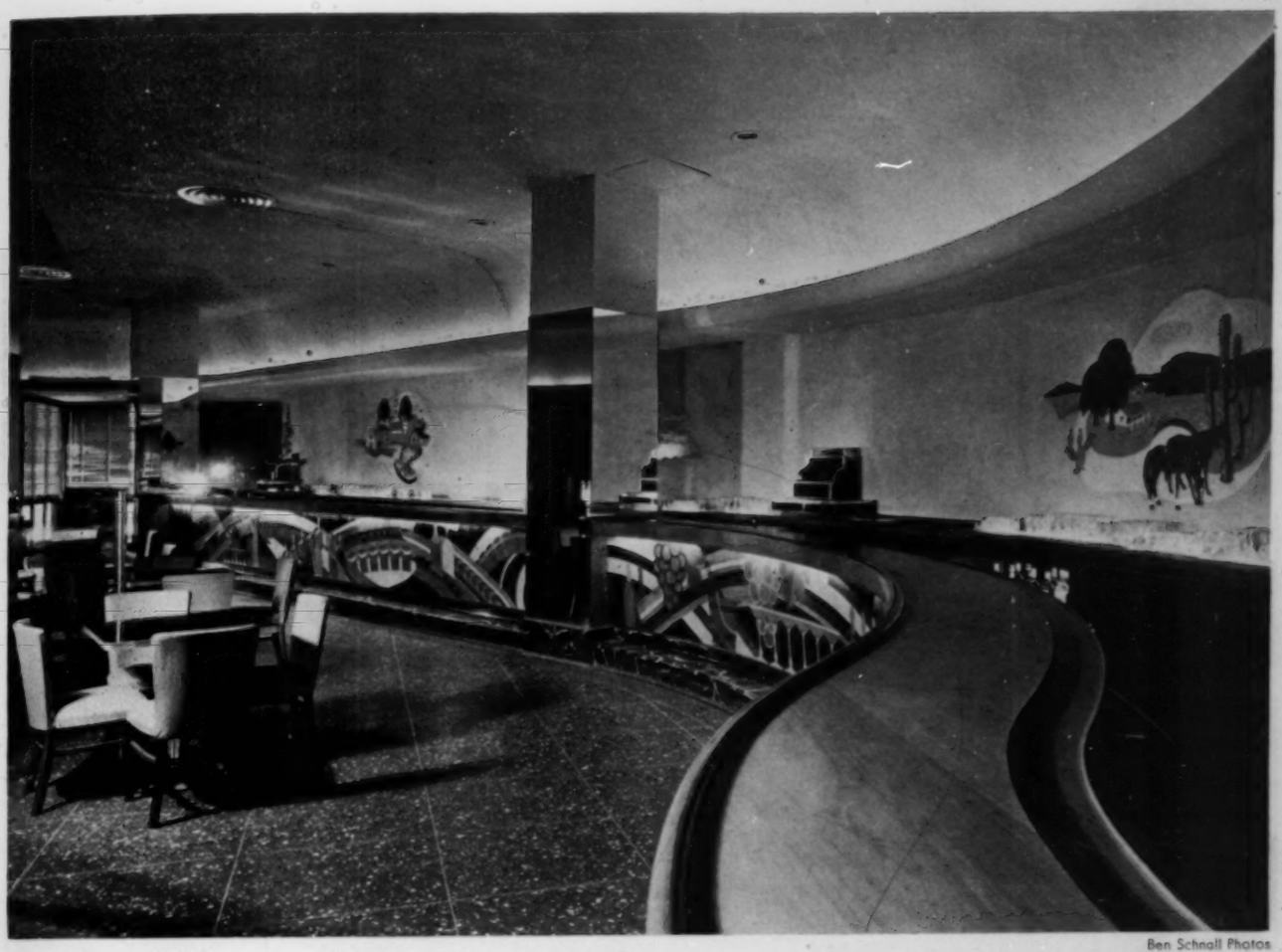
Bar entrance is off 34th Street; marquee at top of photograph is that of Hotel's main entrance. In photo below, ceiling cove lighting is cold-cathode; bar cove has regular fluorescent tubes

Ben Schnall Photos



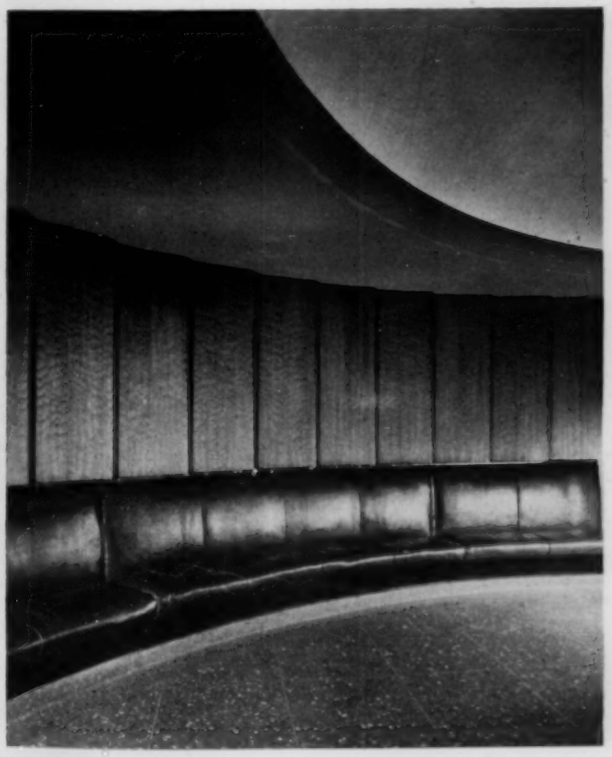






Ben Schnall Photos

Paneling in bar alcove (left) and main area (below, left) is flexible plywood on metal, mahogany finish. Floor is black and white terrazzo with stainless-steel dividers. Entrance off hotel lobby (below, right) is faced with Colorado Colorosa marble.



MADISON ROOM

FOR DAY AND EVENING SERVICE IN A DEPARTMENT STORE

H. S. Manchester, Inc., Madison, Wis.

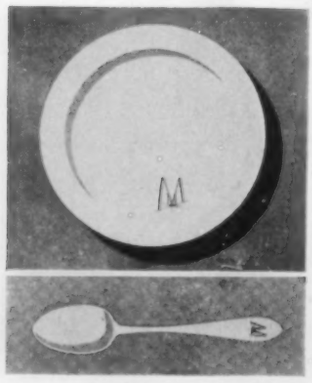
Skidmore, Owings & Merrill, Architects

THIS double operation is unusual for a department store — by day serving store customers, for the most part, and in the evening, general outside patronage. Opening at 10:00 every morning and closing at 9:00 p.m., it offers four basic services: luncheon, afternoon tea, pre-

Smith-Wollin Photos

Photos left and below show views of State Capitol and grounds afforded by the Manchester Madison Room, "unequalled by any other restaurant on Capitol Square, and particularly impressive at night." Draperies are by Angelo Testa; furniture is natural-finish birch; light-brown grospoint carpet covers dining area. View above shows street-entrance vestibule, with checkroom, left, and settees for waiting patrons. Note "Running Men" wallpaper at right; background wall is deep brown

Symbol, left, designed by Rainey Bennett, appears on the menu covers, china, flatware, place mats, match-folders, Petri-dish ash trays, and as a free-standing wall fixture against the "Running Men" background (see top photo, page across). The two "M's", on compass axis, suggest Madison as the hub of the state, and Manchester's, near to the Capitol, as the center of the city



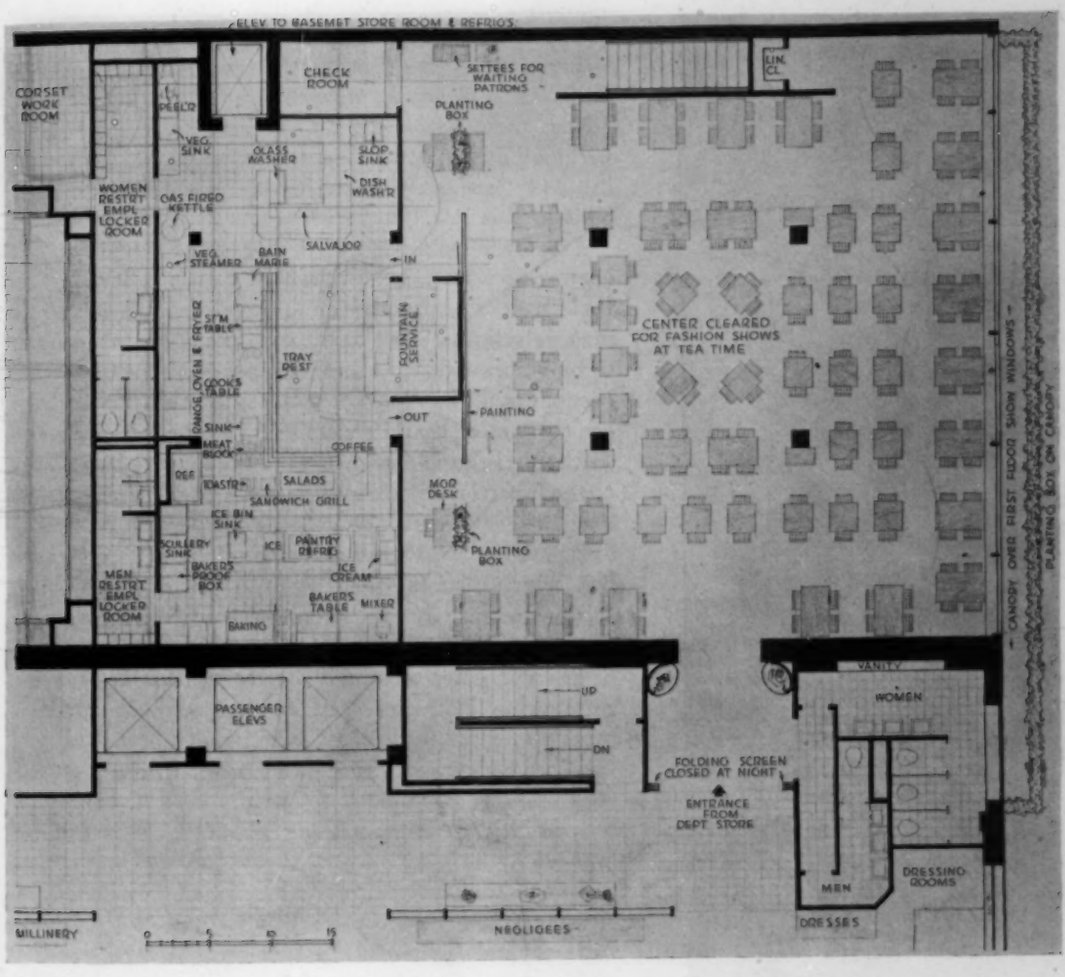
Smith-Wollin Photos

theater suppers, and full dinners. It is one of the first phases to reach completion in Manchester's considerable building-and-alterations program.

Located on the second floor of the store's new addition, the restaurant has one entrance directly from selling areas, and another by stairs from the street. During shopping hours, only the store entrance is open, to draw traffic through the selling departments; in the evening, access is from the street alone. The consequence is a daytime patronage predominantly of women, with a much greater representation of men at night, requiring the general design to have appeal in both directions, with avoidance of an atmosphere too "tea-roomy." Another design requirement was that decor be keyed to Madison's out-of-door and sports way of living.

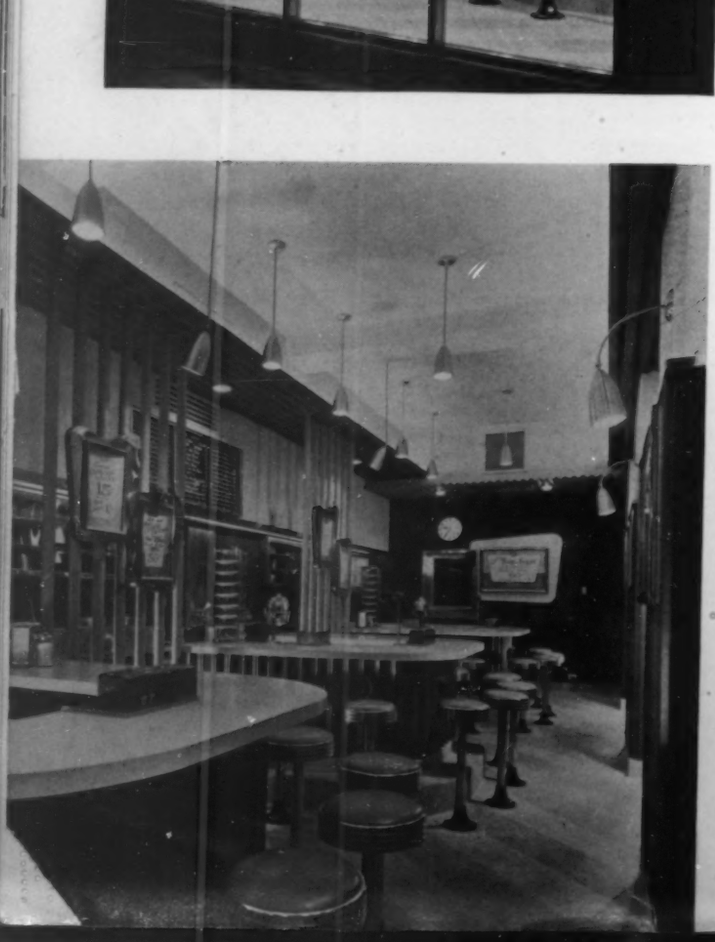
In this spirit, the stairwell slab wall is covered with "Running Men" wall paper, a Danish import designed by Kirby; the same motif appears on the menu covers, by Chicago artist Rainey Bennett (see top page 112). The slab wall of natural-finish white ash, before the kitchen entrance, features depiction of a major regional sport, and in the street-entrance vestibule, casein paintings, also by Mr. Bennett, show scenes around Madison: the lake, State Capitol building, and other features of historical and sporting interest.

Photos on this page show stair entrance from street, right, and entrance from department store selling areas, below, with folding screen closed for night operation. Table lamps (right, see also page 110) were designed and executed by Isamu Noguchi; gooseneck fixtures (below) by Kurt Versen. Store-entrance and kitchen walls are gray; ceilings, oyster-white acoustical plaster



In the plan above, seating is provided for 160. Restroom facilities for men and women are convenient at store entrance; checkroom, used mostly at night, is directly opposite street entrance. The kitchen and service areas show many features certified by experts (see pages 110–121), with distinct "In" and "Out" doorways, efficient fixture layout and convenient employee facilities

Lionel Freedman: Pictorial Services Photos



RENAISSANCE AT RIKER'S

Broadway and 104th St. New York City

By Daniel Laitin, A.I.A.

THIS newest link in the Riker's chain presents almost all the unique problems usually confronting an architect with a stool-type restaurant on his boards.

In the first place, the allowed space for such operations is always about as big as a postage stamp. In a tightly limited area, the architect must somehow manage to fit most of the amenities of a large restaurant, never losing sight of the fact that cleverness and tricks of design must always be subordinate to *"Operation Food."* Dishes must be cooked and brought to the customer with dispatch, yet looking attractive. And "turnover" in this type of eatery is the key to its success or failure. This unit is in a hotel with access from the lobby.

Employee locker facilities, storage of canned goods, compressors, etc., were relegated to the cellar. Nevertheless, it took considerable juggling and slide-rule manipulation to fit all the necessary equipment into the tight space, and still come out with seats for 32 paying occupants. It has long been accepted that no waitress can serve more than 10 customers with proper efficiency, so three U-shape counters were used, with two places at the far end near the hotel entrance for bellhop service. The girls at this station call their orders on a speaker and pick them up a minute or two later on a conveyor belt, which returns soiled dishes to the washer.

The owners gave the architect complete freedom in the design, merely stipulating that he use some panels of glass mosaic, seemingly *de rigueur* for New York restaurants just now. Lately, the orgy of abortive misuse of glass mosaic, an intrinsically beautiful material and expensive, too ($7.00 a sq. ft.), has caused conscientious architects to writhe and fume. This opportunity to do something about it could not be muffed! Artist Max Spivak, a glass mosaic expert with an imagination like Miro and a sense of color precision like Stuart Davis, accepted the challenge and came up with several delightful and colorful abstracts. The architect and artist believe that here they have brought art out of the museum and onto the street to be judged forthrightly and critically by the public. The response to these frequently misunderstood spatial fantasies has been terrific. One customer marvelled at the fact that the shapes took on new character each time she came in to eat.

The vibrant colors of the abstracts are keynotes for the interior color scheme, which includes spinach green, carrot red and butter yellow. Ceramic mosaic tile on the rear wall and behind the stainless steel equipment is matt black. Cold-cathode cove lighting gives smooth primary light distribution, and bullet-type hanging reflectors supply incandescent light where necessary to give the food its proper colors for good appetite.

RESTAURANT LIGHTING WITH SLEIGHT-OF-HAND

By Thomas Smith Kelly, Chairman, N. Y. Section, I.E.S.

CURRENT implications are that the general practice of lighting tends more and more in the direction of an exactly quantitative science. Probably this is most true in cases of laboratories or libraries, where critical seeing tasks are the factors of first importance. However, in restaurants and bars, the rather unscientific factor of "atmosphere" is at least equally ponderable. Strict standards of visibility come closest to being all-important in kitchen areas, and in cafeterias and luncheonettes, where customers select food directly as "merchandise," rather than from a menu. But otherwise, restaurant lighting experts not only must be methodical technicians, but must know the techniques of theater and stage-set, and downright sleight-of-hand!

All practitioners do well, of course, to start within the framework of recommended lighting levels, such as those published by I.E.S., or by the larger manufacturers. Quoting a cross-sectional example: "for restaurants, lunchrooms, and cafeterias, it is recommended that corridors be provided with 5 f.c.; dining room areas, with 10 f.c.; kitchens, pantries and serving areas, with 20 f.c. Displays, 50 f.c."

But, first, on a particular job, the lighting expert must familiarize himself *absolutely* with every dimension, surface, material, color and other architectural specification involved in the areas to be lighted. In addition to the tool of light-source *intensity*, there is that of *color*; and in addition to both, there are many traps for the unwary in the way of their use. There are excessive brightness contrasts to be avoided between light and dark surfaces (anything over 10 to 1 is very questionable); and mirrors and other specular surfaces must be guarded to prevent reflected glare, inimical to customer mood and comfort.

Color, in this mood respect, is most important. Among the major reasons for fluorescent lighting's popularity is its efficiency of lumen output, and the most efficient of all fluorescent varieties is the so-called "daylight" lamp. But under this source alone, with its red spectrum deficiency, restaurant operators and customers find their coffee looking gray, their roast beef, anemic; and ladies' make-ups, de-glamorized.

Speaking generally, the incandescent lamp is the best source of light where food and facial complexions are concerned, since it provides the complete solar spectrum. Frequently it works well in this connection simply as a mixing element with fluorescent. For showcases, glass-faced refrigerators, etc., soft white fluorescent may be used, producing satisfactory color values, and at the same time less heat against the refrigerant than equal-wattage incandescent.

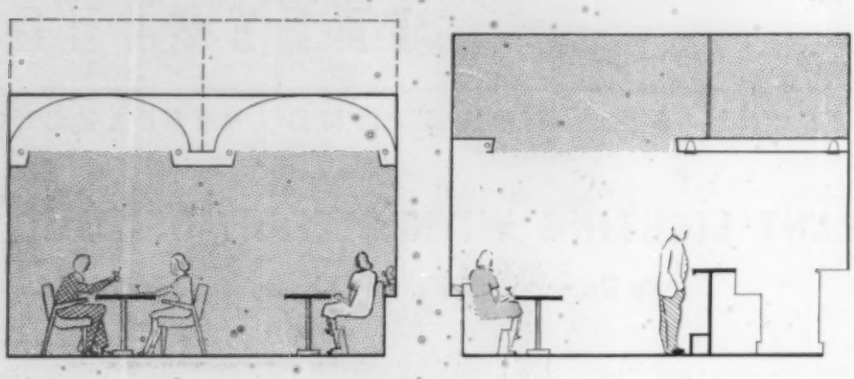
Whatever the means chosen for various uses and effects, modifications will surely be necessary in recommended area levels. For example, in a dining room where the atmosphere is to be strictly *intime*, tabular recommendations of 10 f.c. may be way out of line.

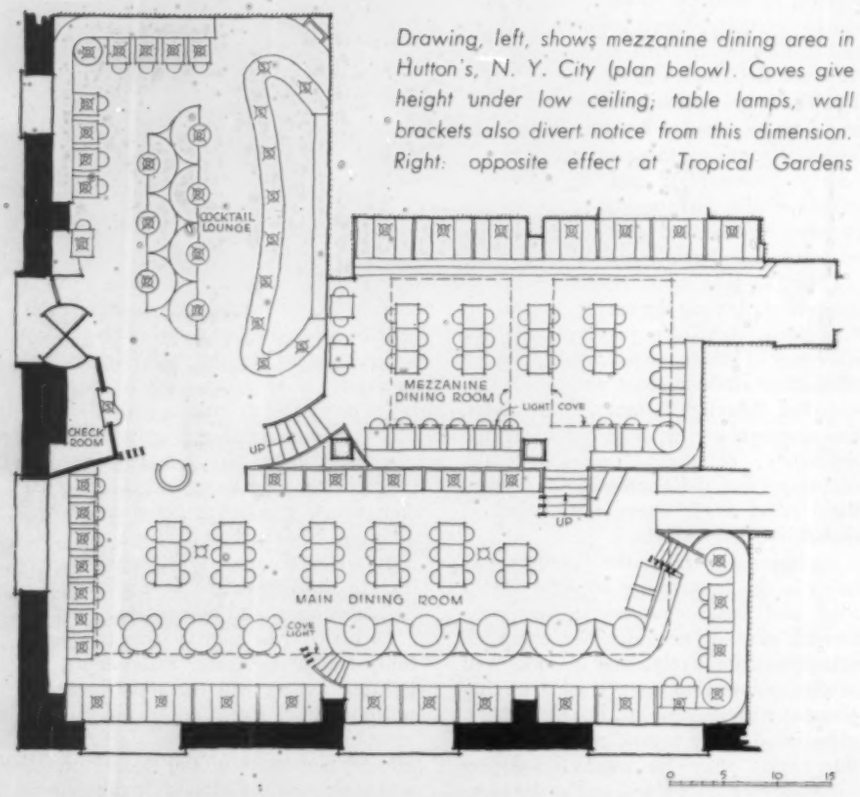
Regarding intensity calculations in general, it is usually wise, in early planning stages, to figure on *over*lighting, since intensities as a rule can more easily be reduced than increased, once a job is completed. Ultimately, of course, even in self-service operations where intimacy and relaxation are not of the first order, avoidance of *too much* light in any area is the one absolute rule to be laid down. But at the outset, lighting experts cannot really anticipate what owners will judge in the end to be the effects that *they* want, nor what refinements the architect or decorator will make in ceilings, walls, flooring, table tops, draperies, etc., adding to the final problems of light reflection and absorption.

In his overall approach to the possibilities of a particular assignment, the lighting expert will certainly prescribe nothing that does not harmoniously complement the architect's efforts and effects, nor those of the decorator. He will start with the exterior in prescribing

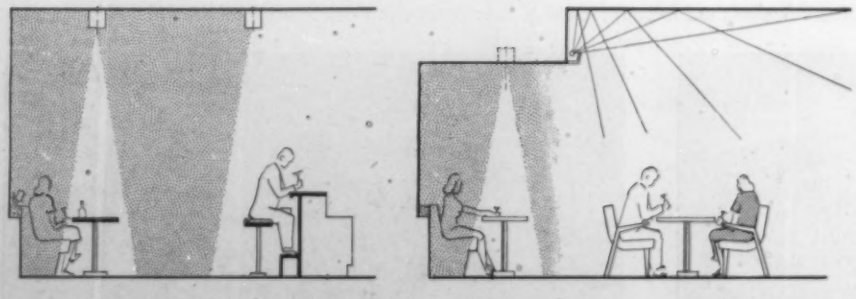
Lighting at far end of Sakele's main dining room is designed to supplement globes in drawing customer circulation into this area

Ben Schnall Photos





Drawing, left, shows mezzanine dining area in Hutton's, N. Y. City (plan below). Coves give height under low ceiling; table lamps, wall brackets also divert notice from this dimension. Right: opposite effect at Tropical Gardens



Above, left: in Hutton's bar "pin-hole" projectors, centered over table and bar tops, give areas of intimate "isolation." In main dining room, right, coves supply chief light, with two chandeliers for sparkle. Lowered area, under ducts, has "pin-hole" system. In plan, R represents pin-holes; S, surface mounted; U, indirect urns. H. H. Siegel, Architect; E. D. Rapp, Designer. Thomas Smith Kelly, Lighting Consultant

for architectural *attraction*, and for internal features of *compulsion*, possibly a chandelier or illuminated mural, magnetically visible to outside observers.

Sleight-of-hand makes its ultimate contribution in lighting for *concealment*, such as throwing displeasing but unavoidable structural features into obscurity, by accentuating attractive points of interest. An example is in Tropical Gardens (see also pages 92 and 95) where lighting effects are instrumental in reducing a disproportionate 16-ft. ceiling to an apparent 10.

But here also, the lighting expert must be wary. The principle of architecturally built-in lighting is generally sound, but mistakes, or devices that lose their charm, are expensive to correct. Coves particularly can be disappointing. Remember that even with a matte-finish ceiling it is difficult to get from coves an advantage much greater than three to one. That is, to get a smooth spread across a 5-ft. ceiling, the coves on either side must be at least a foot down from the ceiling line (allowing for necessary overlap).

The expert who bears in mind these admonitions, and calculates all his factors with precision and imagination, still cannot be confident of his results until tested against public reaction. Lighting, like architecture itself, can be correctly executed according to every technical and artistic canon and still fall resoundingly flat before popular judgment. Close to supreme achievement, I think, is in a job recently offered to a prominent lady decorator's appraisal. "It's perfectly *charming*," she said, "but where are your lights?" She was answered by the flipping of a switch, plunging the room into darkness.

My own favorite incandescent tools are the PAR 38, the R-40, and the T-10 reflector showcase lamps. "Slimline," among the fluorescents, gives longer tube lengths with smaller diameters, instant start, variety of intensities, and the substantial single contact base is a big improvement over the fragile bi-pin. "Circline" is a great help in bar and restaurant lighting where curves are a factor. Cold-cathode fluorescents are more useful in decorative and display applications than where visibility is a prime consideration (less lumen output per running foot). It also requires careful planning and installation for its high-voltage operation, but has the advantage of longer life, compared with hot cathodes. It is very satisfactory, in a variety of shapes, lengths and colors, for use in domes, coves, along curved partitions, and with dropped ceilings of various irregular shapes.

RESTAURANT KITCHENS

Material for this section was supplied by Herman H. Siegel, Architect; Harry Greitzer, Viking Kitchen Equipment Co.; Samuel Greenspan, Nathan Straus-Duparquet, Inc., with all photographs from the latter. Data on ventilation and air conditioning is from Peter Frank, Armo Cooling & Ventilating Co.

Reni Photos

Photo at right shows Garde Manger section in kitchen of the Mayflower Hotel, Washington, D. C., executed by Straus-Duparquet. Foreground: bread warmer; behind, sea food bar

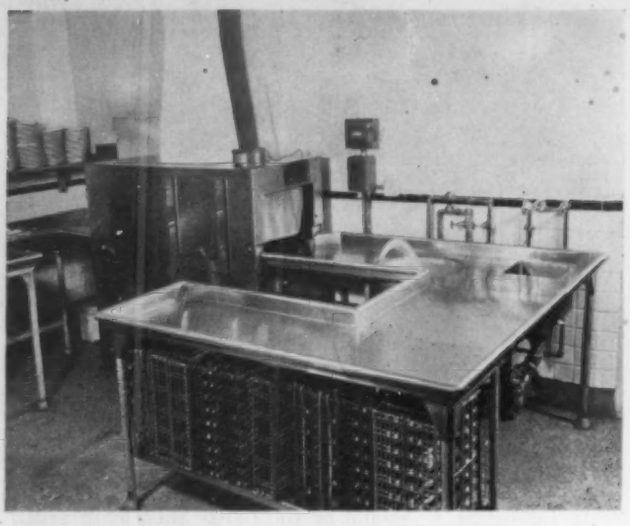
It has been said that the restaurant architect's job is to attract customers; after that it is up to the operator to hang on to them with good food and service. But the architect has a manifest responsibility here, too. Bad planning in this department results not only in loss of custom, but in excessive china breakage, loss of silverware, spoiled food, actions by the Board of Health, and numerous vexations to the help, with consequent loss of their efficiency and even hire.

Essentially every kitchen area, for all restaurant types, conforms to certain basic requirements, and to an ideal plan of layout and relationships among the indispensable functions: receipt and storage of food, preparation, cooking, service, and utensilry washing. It is difficult, however, to be statistical regarding proportions of total area required for these operations to total dining space. It should be obvious from the preceding Building Types Study that requirements at Sakele's, offering full-course menus of wide selection, are vastly different from those in Tropical Gardens, where food is almost an incidental service to liquor. It is possible simply to say that kitchen and service areas, in currently successful operations, are occupying between 50 and 100 per cent the total area of dining spaces, with increasing tendency toward the top figure, to accommodate all the provisions recommended by experts for smooth efficiency.

First consideration, in establishing the layout and relationships of kitchen and service areas, must be unimpeded one-way traffic of all personnel. Waiters should enter the kitchen from dining areas, and leave by separate doors, ideally operating by "magic-eye" in the one necessary direction. A waiter entering from the dining room, presumably with a load of dirty dishes, should come immediately upon the washing section, where he deposits his tray, proceeding then to pick up new orders. Next in line should be the *Garde Manger*, or salad, sandwich, cold meat and sea food section. After this, the Hot Food Area, adjacent to ranges and cooking equipment, followed by the dessert, pastry and beverage section, the last before return to the dining room. Preparation, storage, and receipt areas should be entirely distinct from all the above, with the latter adjacent to outside delivery entrances. However, all sections, distinct or integrated, must be closely related for convenience and efficiency, preferably contiguous or with adequate means of vertical communication.

Basic equipment for the Dishwashing Area includes: shelves or ledges on the soiled dish table to rest trays for unloading; preliminary soaking sinks; pre-flushing equipment to carry off the loosened swill, permitting longer operation of washing machines without change of water. Glass washing equipment should be of the brush type, with a series of gentle slides below table level to assist in

Below, left: Hot Food Area in Mayflower kitchen, with warming units in close-up. Right: Mayflower dish and glass washing section, showing exhaust hoods over washing machines, stacking baskets for glasses. Service tables contain trays beneath



Reni Photo

Left: washing equipment in Restaurant of Namm's Dept. Store, Brooklyn; Morris Lapidus, Architect; kitchen, Straus-Duparquet. Note soaking sink and pre-flush for swill. Right: Mayflower preparation equipment; note vegetable parer at far end of sinks

basket-stacking of glasses as they emerge from the washer. A silver-washing machine is now available which cleans by means of a revolving barrel, filled with small metal pellets. In addition, this equipment sterilizes and burnishes, requiring no drying.

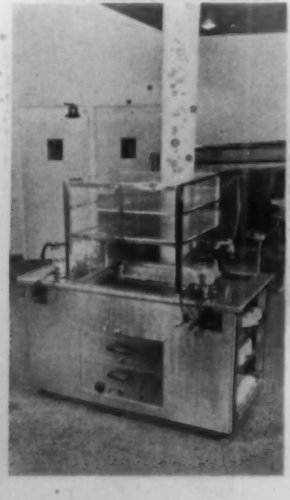
Efficient new equipment for the *Garde Manger* section includes mechanically refrigerated units for salad, cold meats and sea food, to be hooked in very economically with the main refrigeration system. Of great advantage here, as in other pick-up sections, are counter-weighted units permitting the stacking within of dishes and trays; only the top two or three protrude above table level, regardless of the many or few pushing up from beneath. These units can be cooled or heated, and insure minimum exposure of the dishes or trays contained.

For the Hot Food Area, incessant refinements in pressure cookers and kettles, baking and roasting ovens are more and more obtainable. Units to keep food warm until serving are almost indispensable; one type of shelf unit, for installation above the cook's table, is designed to hold complete orders. Its upper tier has an insulated core and convex bottom, returning heat from the lower tier on which the food is placed. Removable grease filters in range hoods are a great convenience in this section.

General provisions for kitchen and service areas should include: rounded corners and cove bases; welded stainless-steel surfaces (nuts and bolts are great dirt collectors); ramps in place of steps, if changes in level cannot possibly be avoided; impervious floors, walls, and even ceilings (see discussion of materials, pages 97–103); floor drains for daily hosings; at least 20 f.c. of light at working levels; such conveniences, where possible, as walk-in boxes with electrical germ-killing devices and magic-eye operation; and, of course, such employee-morale maintainers as locker-toilet-rest-room facilities and adequate ventilation in all regions.

Below, left: Mayflower cooking equipment; soup kettle in left foreground; behind, pressure vegetable cooker; at right is box for prepared fish, with small drawer for scallops, etc. Photo at right shows unit for booth-service utensils, coffee, water, etc. at Namm's

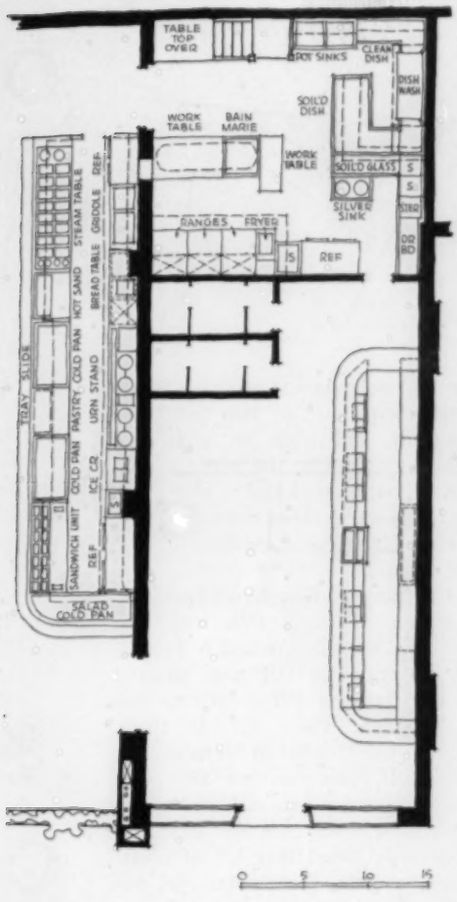
George W. Nuckols Photo

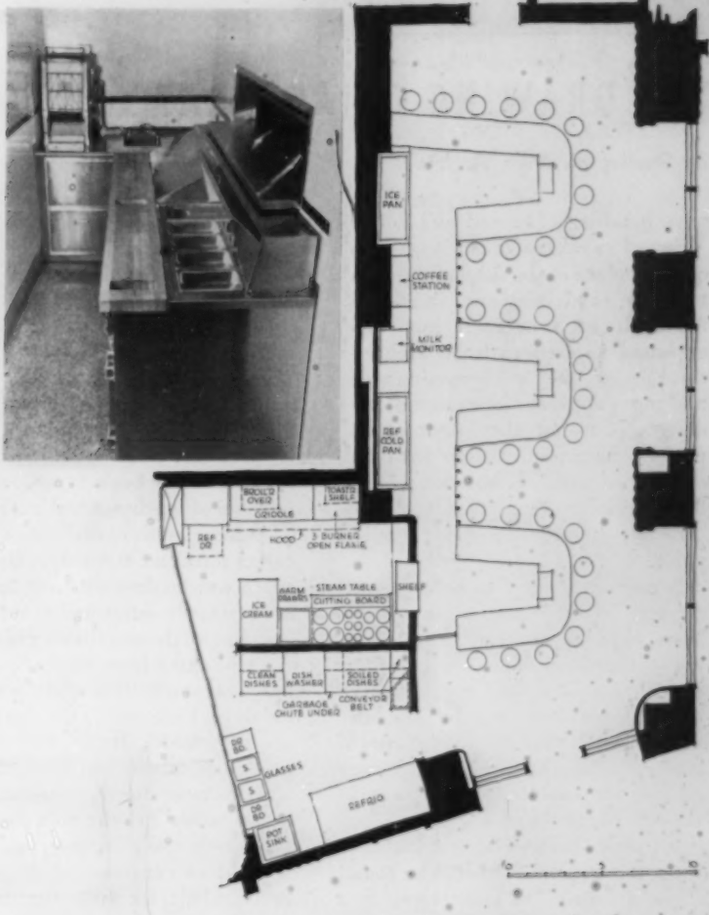


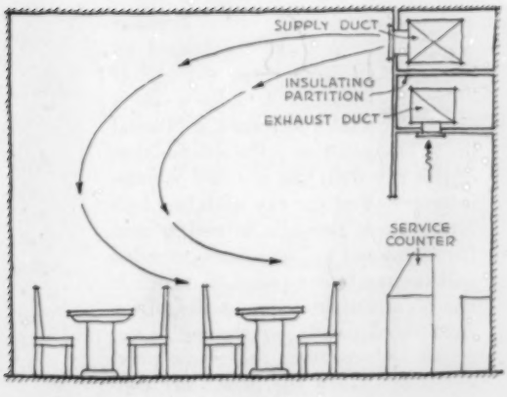
Ventilation and Air Conditioning

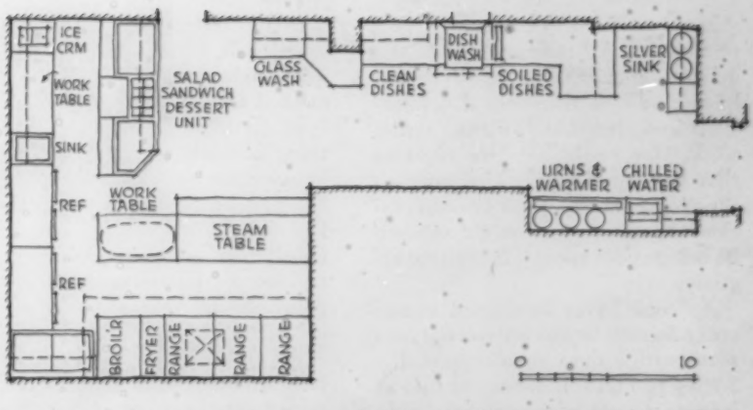
Prime purposes of a restaurant's ventilating system are the removal of foul air and heat from kitchen areas, and the prevention of these in dining spaces. Bad-air exhaustion should take place as close as possible to points of origin. Range hoods preferably should be no more than 6 ft. above the floor; dish-washing machines should have hoods over each opening. Construction of all hoods should be such that there is a narrow curtain of high velocity air around the exhaust perimeter.

With any extensive exhaust system, a positive supply of replacement air must be provided (relying for this, to any considerable degree, on haphazard filtration through doors and windows, makes many difficulties). A controlled-intake balance should provide a little more air supplied than exhausted in dining areas, with the reverse holding for kitchens. This maintains a slight flow of air from the dining areas, in one direction toward the kitchen to repel odors, and in the other toward the street, to prevent drafts. Also, this replacement air should be heated. One method is simply preheating to room temperature, for preventing cold drafts; another is to make it the principal heat carrier, eliminating radiators. Protective measures









Plan top, left, is kitchen and counter layout in Reed's Cafeteria (see also pages 99 and 106). Inset photo at top, right, with plan of Riker's (see also page 116), is actually equipment at Namm's, but illustrates means of intercommunication between counter and kitchen, essential to this type of operation. Drawing directly above, left, shows prevention of "short circuiting" in operating air conditioning with counter-hood exhaust. Plan at right, directly above, is kitchen of Field's Restaurant and bar (see also pages 98–106)

must be taken to prevent freezing of heating-coil condensate at below 32° F.

Air-conditioning factors vary according to restaurant types. It is possible that in self-service and counter operations, temperature and humidity will be kept at lower general levels of difference, between inside and outside, than in restaurants where patrons stay longer.

Automatic control is very important, particularly in cafeterias and luncheonettes, with their rapid changes of occupancy and short, heavy loads during peak periods. To meet these fluctuations, compressors are probably the type of refrigeration source most generally used.

It is usually good practice, when external conditions warrant, to use outside air *entirely* for conditioning systems. Otherwise, just enough outside air is introduced to maintain the balances described previously, with the main body recirculated. Replaceable-type filters are most practical for both air-conditioning and ventilating purposes.

Inlets for air-conditioning and ventilation must be calculated carefully, not only to avoid drafts but to prevent short-circuiting of air-circulation to exhaust openings. Also general architectural schemes must be studied for harmony of outlets with room shapes and seating plans. A harmonious example, in this respect, is illustrated on page 101.

THE DRAWING OF ACCURATE CURVES

By Sterling M. Palm, Architect

THE handling of curved and double curved surfaces has long been commonplace in the shipbuilding, automotive and airplane industries. Although such surfaces have not appeared so frequently in architectural design, they are becoming more and more apparent in contemporary design. It is not the intent of the present discussion to go into the method of such surface delineation, but a brief statement of the basic principle provides a good starting point.

A curved surface, to be a smooth surface, without humps or depressions, must be so formed that a section through the surface will be projected as a "smooth" regular curve in that plane. A curve to be "smooth" must be such that the rate of curvature, or radius, at any point does not change too rapidly with respect to the rate of curvature at any adjacent point. Any curve which will perfectly meet this requirement will be found to be a "conic" of some type, or a combination of conics. Thus a review of the characteristics of the conics is essential to the study of surfaces.

The study of these curves also provides a valuable tool for the delineation of curves of any type and have a number of practical applications in architectural or engineering work. One might venture to state that any curve which is pleasing to the eye would be a conic or combination of conics, which might in itself be inducement enough to invite some study.

A "conic" may be defined as any curve formed by the intersection of a plane with a right circular cone. Referring to Fig. 1, it is evident that an infinite variety of curves is possible, dependent on the slope of the sides of the cone, the slope of the cutting plane, and the relation between the cutting plane and the axis of the cone.

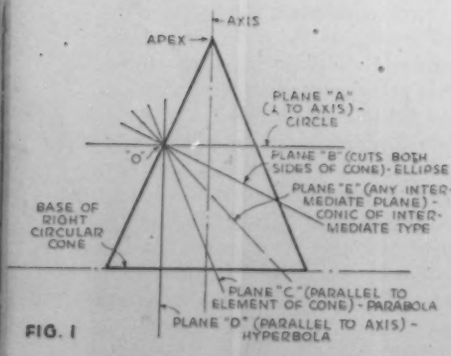

AXIS
APEX
PLANE "A" (⊥ TO AXIS) - CIRCLE
PLANE "B" (CUTS BOTH SIDES OF CONE) - ELLIPSE
PLANE "E" (ANY INTERMEDIATE PLANE) - CONIC OF INTERMEDIATE TYPE
BASE OF RIGHT CIRCULAR CONE
PLANE "C" (PARALLEL TO ELEMENT OF CONE) - PARABOLA
PLANE "D" (PARALLEL TO AXIS) - HYPERBOLA

FIG. 1

All of the conics described by planes *A* to *D* in Fig. 1 are familiar curves, possible of simple mathematical description and analysis. There are, in addition, an infinite number of intermediate conics produced by the intersection of plane *E* with the cone, approaching one or other of the basic types, and each possible of mathematical analysis.

Although the mathematics of the conics forms an interesting study, no space will be devoted to it here. We are primarily interested in an understanding of the conditions differentiating one curve from another, and in a practical application of the principles involved. Fortunately these principles are extremely simple and entirely general in nature. To anyone familiar with the procedure it should no longer be necessary to refer to a handbook to refresh one's memory as to the method of constructing a parabola or hyperbola; for these, together with an ellipse or even a circle, can all be constructed by the same simple process.

In the latter part of this discussion I will, for the benefit of those interested, develop a proof of the method about to be described. However, for those who just wish something for ready reference, it will only be necessary to follow the procedure outlined in Figs. 3 to 7 inclusive. Fig. 2 is introductory, but shows clearly the entire procedure necessary for the determination of any one point on the curve, developed to greater length in Fig. 3.

It can be shown that every conic or second-degree curve can be determined, given any one of the following five sets of conditions:

Case I. One point and two point-slopes (direction of tangent).

Case II. Three points and one point-slope.

Case III. Five points.

Case IV. Two points and a point-slope-curvature.

Case V. A point-slope and a point-slope-curvature.

Cases IV and V will not be discussed as their treatment would require more space than warranted. Fig. 5 illustrates the method of determining a sixth point on a conic given five points (Case III). In practice it generally will be found that

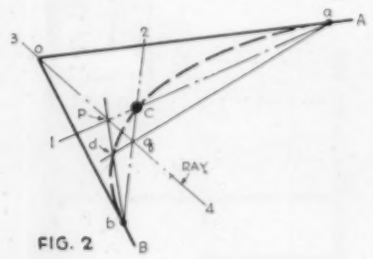


FIG. 2

one or two tangents are known, together with one or two points of tangency and with an additional point or points on the curve available, so that Cases I and II above will be found to be those most generally useful. These cases are illustrated in Figs. 3 and 4.

Referring to Fig. 2, we have two tangents, *OA* and *OB*, with two points of tangency, *a* and *b*. Point *a* on the tangent *OA* and point *b* on the tangent *OB* constitute two point-slopes. These are, in themselves, insufficient to determine a curve. If, however, we are given an additional point, such as point *c*, it will be seen that we have the previously listed first set of conditions, namely, "one point and two point-slopes."

In order to find any other point on the curve the procedure is as follows: Draw a line through *a* and *c* prolonged to intersect *OB* at *1*, and a line through *b* and *c* prolonged to intersect *OA* at *2*. Now through *O* draw any line, *3–4*, known as a "ray," or in later reference, a "Pascal line." Designate as *p* the intersection of this ray with line *a–1* and as *q* the intersection of the ray with line *b–2*. Draw lines through *a* and *q* and through *b* and *p*. These lines extended will intersect in a point, *d*, which is the point sought lying on the curve. Additional points on the curve are found by repeating the above process, after which the points are connected with a smooth curve by means of a french curve, ship curve or spline.

Fig. 3 illustrates merely an expansion of the above principle so as to determine a number of points on the curve. Fig. 4 illustrates the application of the method by the second set of conditions, namely three points (*P*, *A* and *B*) and one point-slope (point of tangency *T* on the tangent *XY*).

It will at times be found necessary to draw a tangent to a given curve at a given point. Figs. 6 and 7 illustrate the application of the foregoing principle, in reverse, in determining such tangents.

(*Continued on page 127*)

Fig. 3. TO CONSTRUCT A SECOND-DEGREE CURVE THROUGH A CONTROL POINT D AND TANGENT TO LINES OA AND OB AT POINTS A AND B:

1. *Draw line BE through D and line AF through D.*
2. *Divide DF into any number of spaces, e.g. four. This gives points G_1, G_2, and G_3.*
3. *Draw BG_1, BG_2, and BG_3.*
4. *Draw OG_1, OG_2, and OG_3, intersecting BE at H_1, H_2, and H_3.*
5. *From A, draw AH_1, AH_2, and AH_3, extended to intersect BG_1, BG_2, and BG_3, respectively, at points P_1, P_2, and P_3, which are points on required curve.*
6. *Additional points P_4, P_5, and P_6 are found likewise.*
7. *Curve fitted to these points is the required curve.*

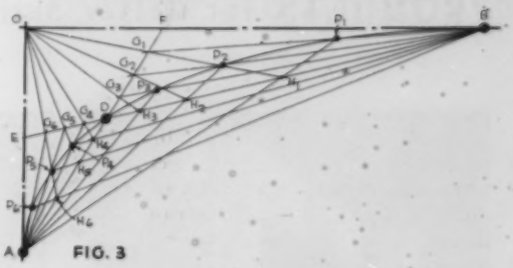


FIG. 3

Fig. 4. TO CONSTRUCT A SECOND-DEGREE CURVE TANGENT TO LINE XY AT POINT T, GIVEN THREE OTHER POINTS ON THE CURVE, P, A, AND B:

1. *Draw lines BT and PA extended to intersect at point 1.*
2. *Draw lines PB and TA, intersecting at point 2.*
3. *Draw a line through points 1 and 2, extending to intersect tangent XY at point O.*
4. *Draw line OP, which will be tangent to the required curve.*
5. *Having two tangents, OT and OP, two points of tangency, T and P, and a control point, A or B (whichever is more convenient), proceed as in Fig. 3 to find additional points on the curve.*

FIG. 4

Fig. 5. TO FIND A SIXTH POINT WHEN FIVE POINTS (1, 2, 3, 4, AND 5) ARE GIVEN:

1. *Draw lines 1–3 and 2–4, calling intersection point o.*
2. *Draw lines 2–5 and 1–5.*
3. *Draw any "ray," AB, through point o, cutting line 2–5 at p and line 1–5 at q.*
4. *Draw lines through 3 and p and through 4 and q, intersecting at point 6, which will be an additional point on the curve.*
5. *Repeat procedure with different rays to find other points.*

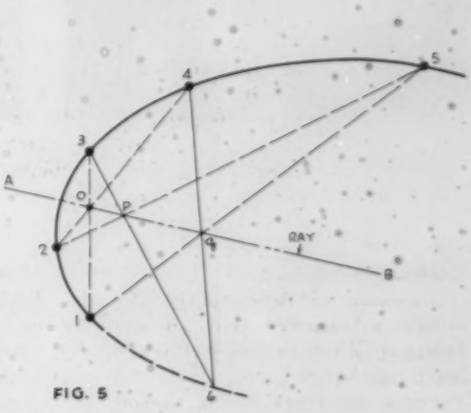


FIG. 5

Fig. 6. TO CONSTRUCT A TANGENT:

(Given, second-degree curve OB, tangent to CO and CB at points O and B, respectively; tangent to be constructed at any point, P.)

1. *Select any two points, M and N, on curve OB.*
2. *Draw PN and BM, intersecting at point D.*
3. *Draw PS and BN extended to intersect PS at point E.*
4. *Draw a line through intersections D and E, extending it to intersect tangent BC at point R.*
5. *Draw a line through P and R, which will be required tangent.*

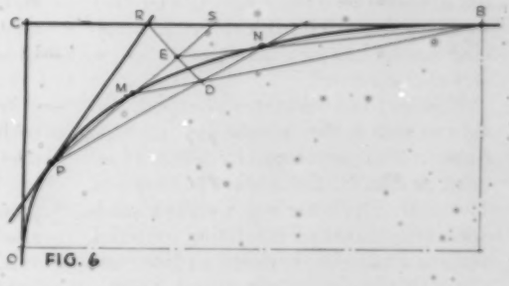


FIG. 6

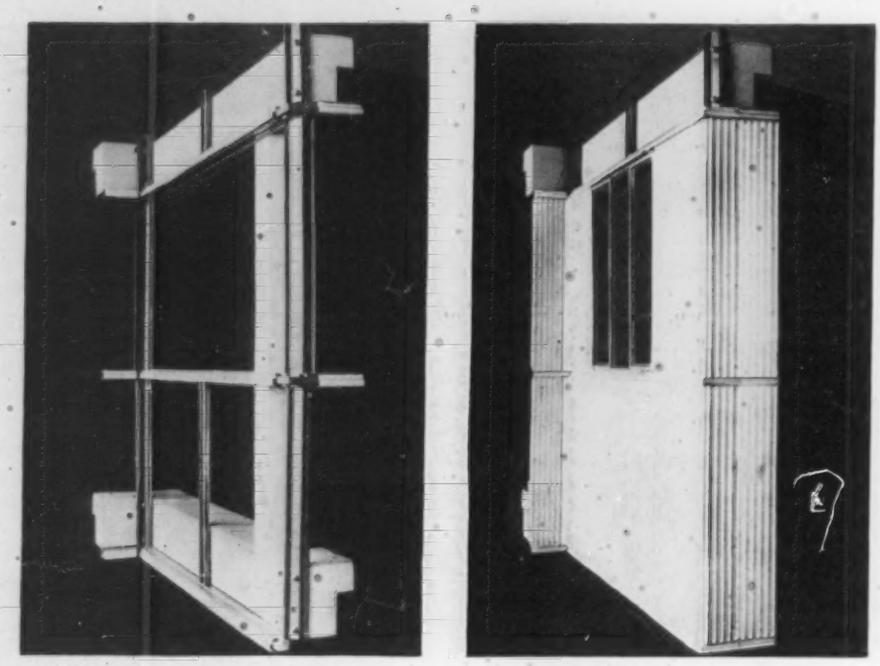
Fig. 7. TO CONSTRUCT A TANGENT:

(Given, second-degree curve HJ; tangents to be constructed at any two points, P and T.)

1. *Select any three points, A, B, and C, located conveniently between points P and T.*
2. *From P, draw lines PA, PB, and PC.*
3. *From point T, draw TA, TB, and TC.*
4. *Extend PA and TC to intersect at E.*
5. *Extend TB to intersect PE at G.*
6. *Call intersection of lines TA and PC, point D, and intersection of lines TA and PB, point F.*
7. *Draw lines DE and FG, extended to intersect at R.*
8. *Lines RP and RT are required tangents at points P and T.*

FIG. 7

PRODUCTS for Better Building



Metal-clad curtain wall consists of insulated panels carried on steel channel studs

CURTAIN WALL

The steel or concrete skeletal construction of modern buildings has long been a challenge to develop a lightweight insulating skin that will take full advantage of a curtain wall system. (See "The Better Wall Is Coming," by Robert L. Davison, ARCHITECTURAL RECORD, November 1946.) Why use a heavy masonry wall, 13 in. thick, if thin metal-clad panels can be made to do the job as well, or better?

Now in the final stages of experimental research is the *Metal-Clad Insulated Curtain Wall*, developed by William Lescaze, Architect, and Robert L. Davison, Designer. The basic wall unit is a sandwich-type panel of insulating material, such as Foamglas, between an inner and outer face of ordinary steel and stainless steel. Other insulating materials under study are microporite and vermiculite, and for the metal skin, aluminum and copper.

Although these wall units are only 3½ in. thick, it is claimed that they provide almost six times the insulation of a 13-in. masonry wall. The reduced wall thickness increases floor area considerably in a large building. A typical wall unit 52 in. square, weighs less than 200 lb., one-seventh to one-twelfth the weight of a wall in conventional brick, or brick and tile construction. Erection is simpler and cheaper because a single panel replaces approximately 115 masonry units.

The wall system is horizontal. Two of the panels span from the ceiling of one floor to the ceiling of the next so that the wall is divided horizontally into two parts. The lower half is a line of solid units, bolted to the conventional concrete or steel frame. The upper half is arranged into various combinations of windows and wall.

Erection steps are as follows:

1. Vertical steel channel studs are bolted to anchors inserted in the spandrel beam on 4 ft. 4 in. centers, regardless of column spacing. Anchors are adjustable to permit exact alignment of the studs.

2. Continuous horizontal sill and head members are attached to the studs.

3. Wall panels are slipped in place. (In a variant, the panels are bolted to the studs, and sill and head members are then attached.) Vertical joint is sealed by a prefabricated spline.

4. Following completion of the spandrel panels, the window strip is installed. Windows may be placed at any point.

Development work was sponsored by New York Housing Trust in cooperation with Republic Steel Corporation (which may eventually place such a wall unit on the market) and Pittsburgh Corning Corporation.

FOLDING DOORS

Modernfold doors and partitions consist of a series of vertical semi-rigid accordion pleats on a steel frame, which slides along an overhead track. Covering material is *Fabrilite*, a Du Pont vinyl plastic coated fabric, said to be fire-resistant, washable, and resistant to cracking. Pulls and handles are also of plastic. A lock or latch may be attached. Units are available in standard-size door widths; or custom-made to fit other openings. Fabrilite has been approved by the Board of Standards and Appeals for covering folding partitions in places of public assembly. New Castle Products, New Castle, Ind.

FLUORESCENT LIGHTING

The *Surface-Attached Holoflux* fluorescent fixture features a prismatic cover designed to give maximum illumination without glare below or strong shadows above. The units are designed to take either two or three lamps and may be installed singly or in multiples, mounted directly on the ceiling or suspended on stems. They are fully enclosed. Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.

ACOUSTICAL BOARD

Fiberglas acoustical board is dimensioned to fit between recessed fluorescent light troffers and thus form a suspended ceiling with sound-absorbing properties. The 1-in. thick board, made from specially processed glass fibers treated with thermosetting resins, reportedly offers other advantages of being noncombustible and non-warping. It will span 24 in. without sag or cross support; and is

Panels of acoustical Fiberglas fit between light troffers to form a suspended ceiling

cross-grooved to resemble tile, painted white at the factory. According to tests, its noise reduction coefficient is quoted as about 0.80; light reflection coefficient, 0.75 to 0.80; and weight, 0.75 lb. per sq. ft. Moisture reportedly produced no change in dimensions. Owens-Corning Fiberglas Corp., 718 Fifth Ave., New York 19.

(*Continued on page 146*)

THE DRAWING OF ACCURATE CURVES

(*Continued from page 122*)

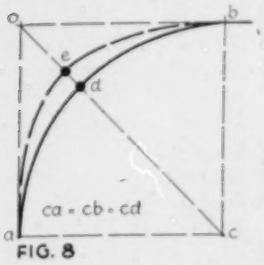


FIG. 8

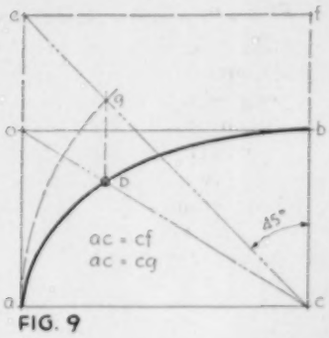


FIG. 9

Referring again to Fig. 2, it should be noted that the point *c*, which was selected somewhat at random in this case, is of particular importance, in that, with two point-slopes *oa* and *ob* given, the character of the curve will vary considerably depending on the location of the point *c*, known as the "control" or "shoulder" point. The extent to which the control or shoulder point influences the shape of the conic is illustrated in Fig. 8, in which, with two equal tangents, $ob = oa$, the control point *d* is so taken that $cd = cb = ca$. The resulting curve in this case will be, as expected, an arc of a circle.

If point *e* were to be used as a control point, the resulting curve would be a parabola or other conic, depending on the exact location of point *e*.

In Fig. 9, the control point *D* is determined by projecting down to diagonal *oc* from the intersection of circular arc *ag* with diagonal *ec*. With *D* as a control point, tangents *ob* and *oa* and points of tangency *b* and *a*, a quarter ellipse would be anticipated. Following the procedure previously outlined and using the conditions stated, it will be found that an accurate ellipse will result.

A parabola, hyperbola or other conic will be determined similarly when there is given, in addition to the point-slopes, a control point which is known to lie on the curve in question. Mathematically, the slope of the tangents can be determined once the equation of the parabola or hyperbola is known. In a great number of cases however the tangents will be given, so that it will be possible to construct these curves without recourse to mathematics.

PRACTICAL APPLICATIONS

There are many practical applications of the foregoing principles, among which might be included the following examples. In all, it should be noted that the process consists of determining two points of tangency on their respective tangents (*i.e.*, two point-slopes) together with a control point. Following this, the method outlined in Figs. 2 and 3 is followed to determine points along the curve.

Possibly one of the most useful applications consists of transforming a curve, carefully determined by freehand methods, into a definite geometric figure which can be duplicated, enlarged or otherwise utilized. Such a curve thus becomes definitely tied down. Fig. 10 might represent a profile, a section of a surface or possibly a roadway.

The usual method of duplicating this curve would be to determine, by trial, a series of radii describing sections of the curve, or possibly a system of offsets from a traverse line might be established. Both of these methods or others of a similar nature are tedious, inaccurate, and crude as compared to the simple and direct method of conics. This principle, as applied to the case at hand, would consist of splitting the curve up into convenient sections, such as *ab*, *bc* and *cd* of Fig. 10. Tangents would then be determined at points *a*, *b*,

FIG. 10

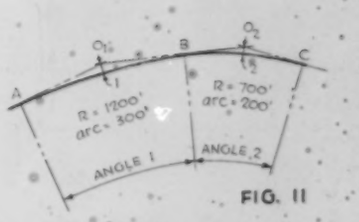


FIG. 11

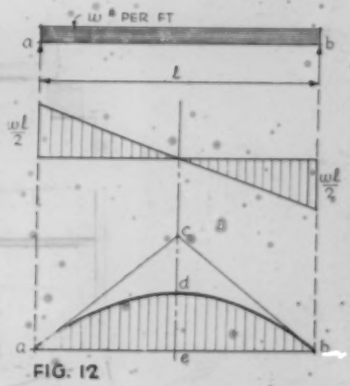


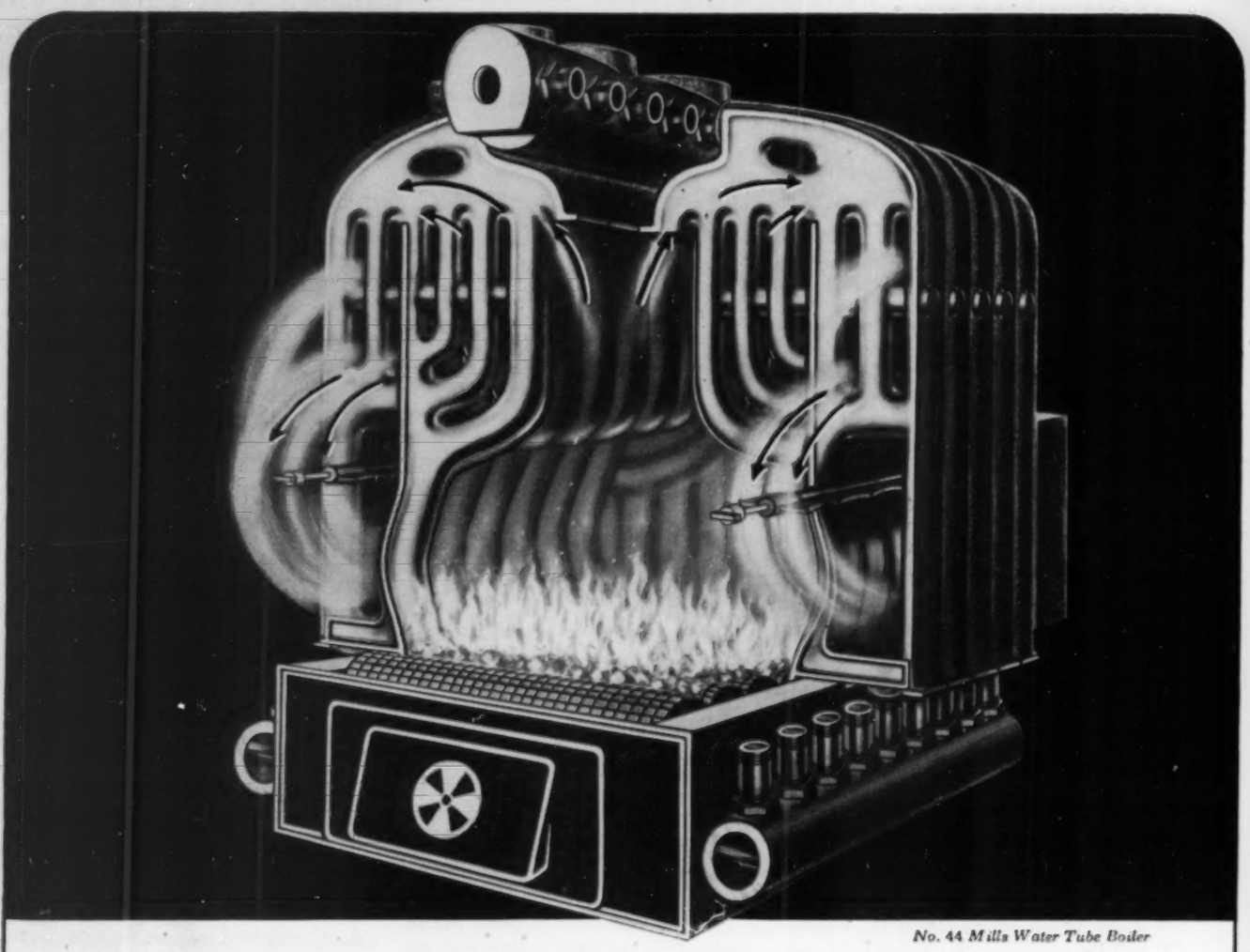
FIG. 12

c and *d* and control points in each section, such as k_1, k_2, and k_3. The curve is now definitely tied down and can be reproduced exactly. Some points on the curve should be checked by the method described in Fig. 3, and if discrepancies appear it will undoubtedly be apparent that the freehand curve was not smooth at the point in question.

A similar application is illustrated in Fig. 11, which represents a street line consisting of two circular arcs *AB* and *BC* of radii such that the centers are inaccessible or off the drawing. The arc lengths being given, the central angles, *1* and *2*, can easily be determined and consequently the tangents for both sections can be plotted. The distances $O_1 1$ and $O_2 2$ may then be computed, being in each case equal to *R* times exsec of half the angle. We would then have established for each section the two tangents and control point, after which points on the curve would be determined as previously described.

Fig. 12 illustrates the application of the principle to the construction of a moment diagram, such as might be required for use in the design of a plate girder. For the sake of simplicity, a uniformly loaded beam is taken, although the process can be applied to any system of loading. Inasmuch as the shear diagram gives the slope of the parabola representing the moment diagram at any point along the span, the slope at the two supports *a* and *b* are each equal to

(*Continued on page 129*)



No. 44 Mills Water Tube Boiler

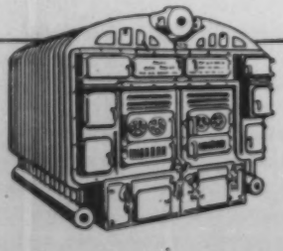
"There's a long, long trail . . . ."

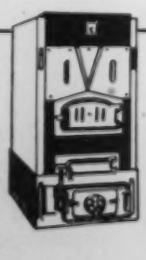
The hot flue gases in an H. B. Smith Cast-Iron Boiler rise directly to the highest surface of the boiler, across to each side, to the front through the upper flue passages, then to the back through lower channels, and finally up the chimney. It's really a long, long trail . . . and not a straight one.

Actually, the gases would rather rush directly to the chimney, but the efficient "Mills" design hinders them at every turn. Instead, they're scientifically-directed along paths which give them a chance to scrub against maximum heating surface and give up more heat.

That's the secret of Smith-Mills efficiency. The result is more heat per fuel unit . . . less fuel used . . . lower fuel costs.

It *pays* to specify H. B. Smith boilers for industrial, commercial, institutional and residential jobs. If you want to know more important H. B. Smith advantages, send for your free catalog.





H.B. Smith

CAST-IRON BOILERS

THE H. B. SMITH CO., INC., 62 Main Street, Westfield, Mass. Offices and Representatives in Principal Cities

THE DRAWING OF ACCURATE CURVES

(*Continued from page 127*)

one-half of *wl*. The ordinate *ce* is thus equal to wl^2 divided by 4, while the ordinate *de* is half of this or wl^2 divided by 8. With *w* and *l* given, it is necessary only to plot, at some convenient scale, the two tangents *ac* and *bc* and the ordinate *de* locating the control point *d*, after which additional points on the curve are determined, as before. This method will, in a great number of cases, be found considerably simpler than the usual method of determining points by figuring moments at various points along the span.

Always bearing in mind that the two tangents and a control point fix definitely the shape of the curve, the principle outlined can be put to use in solving problems such as the intersection of surfaces of all types, vaulting and vault ribs, graphs and diagrams, or in fact any problem involving curves or curved surfaces. The examples just given have all fallen under the previously cited Case I, involving two tangents and a control point. It will be found in practice that these conditions are usually present or can be established. Where this is not possible it will only then be necessary to fall back upon one of the other applications, Cases II and III as illustrated in Figs. 4 and 5 respectively.

BASIC THEORY

It will possibly be of interest to some readers to follow the development of the relationship upon which the foregoing is based. This relationship, known as the "Pascal Theorem," is diagrammed in Fig. 13, and may be stated as follows: "If the extremities of any hexagram inscribed in a conic are numbered in consecutive order 1 to 6 as shown in the sketch, the intersection of the opposite pairs of sides *1–3* and *2–4*, *4–6* and *1–5*, and intersection of the diagonals *2–5* and *3–6* will always lie in a straight line, known as a 'Pascal line'." Thus the intersections *o*, *p* and *q* lie on a "Pascal line" *ab*.

A "hexagram" may be briefly described as a six-pointed star, and in Fig. 13 is clearly visible as such when the sides *3–5* and *2–6* (dotted) are drawn. The term "hexagram" is, however, possible of much broader application: the figure need not be regular in shape, nor is the curve in which the hexagram is inscribed limited, except in one respect — it must be a conic.

In Fig. 14, the same relationship is again indicated, the nomenclature of Fig. 13 being retained; the hexagram in this case being irregular in form and inscribed in an ellipse. In both Figs. 13 and 14, lines *1–3* and *2–4* intersect at *o*, lines *1–5* and *4–6* intersect at *q* and lines *2–5* and *3–6* intersect at *p*. From the "Pascal theorem" above stated, points *o*, *p* and *q* will always lie in a straight line known as a Pascal line.

Earlier in this article we stated as Case III the condition that five points on a conic curve were sufficient to determine the curve, or stated otherwise: five points on a conic are sufficient to establish a sixth point, also on the conic. A comparison of Fig. 14 with Fig. 5 will show that the procedure outlined in Fig. 5 is derived directly from the relationship shown in Fig. 14, the only difference being that in Fig. 5, with five points given, the Pascal line passed through the point *o* at random determines the two other intersection points *p* and *q*, which immediately determine the location of the sixth point as shown.

It will be observed that as the position of the fifth point varies the sixth will also vary, but the ensuing curve will be the same. Referring again to Fig. 5 it will be noticed that if point *3* is moved, but always remains between points *2* and *4*, the intersection *o* will lie on the inside of the curve. If point *3* is moved, however, until it lies between points *1* and *2* the intersection of lines *2–4* and *1–3* will lie outside the curve. If now we assume that point *2* is rotated clockwise until it coincides with point *4*, and point *3* is rotated counterclockwise until it coincides with point *1*, indicating the combined points *2–4* and *1–3*, as in Fig. 15, it will be seen that the lines joining points *1* and *3* and points *2* and *4* must be tangents to the curve at the combined points *1–3* and *2–4* respectively. As before, the intersection of these two lines will be indicated as point *o*.

It was previously indicated that the fifth point was not restricted as to position as long as it remained on the conic. Assume point *5*, in Fig. 15, to be intermediate between the combined points *1–3* and *2–4*. With this arrangement we would now have established the first set of conditions mentioned earlier: "One point and two point-slopes."

Proceeding as in Fig. 5, we draw lines *CD* through points *2* and *5* and *EF* through points *1* and 5. If we then pass a Pascal line *AB* at random through point *A* and call the intersection of this line with line *CD* (or *2–5*) the point *p* as before, and also the intersection with line *EF* (or *1–5*) the point *q*, we will then have retained the same relationship of lines and points in both cases. Continuing as in Fig. 5, we will draw lines through points *3* and *p* and through *4* and *q* intersecting at point *6*, which is the point sought. If we now compare Fig. 15 with Fig. 2, it will be seen that the procedure is the same as previously outlined.

Also, since the procedure followed in Figs. 5 and 15 was identical it is apparent that the method is general as to Cases I and III. A study of Fig. 4 will show that the procedure in Case II is likewise similar.

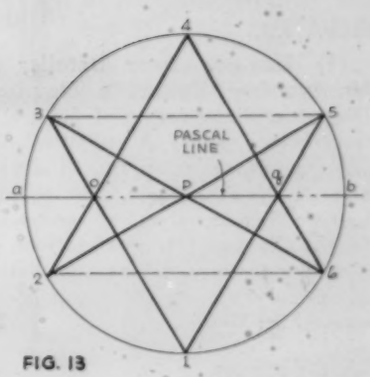


FIG. 13

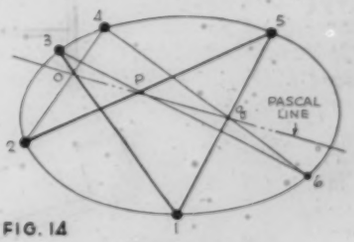


FIG. 14

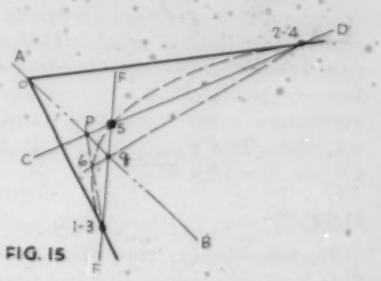


FIG. 15

MANUFACTURERS' LITERATURE

ELEVATORS

(1) Elevator Door Details; (2) Montgomery Hydraulic Elevators. Diagrams, dimensions and features of single swing, single sliding, two-speed sliding, center opening, freight elevator and dumbwaiter doors, and counterbalance hatchway safety grates for freight elevators (1). Specifications, engineering features, typical installations (2). 6 and 4 pp., illus. Montgomery Elevator Co., Moline, Ill.

FANS

(1) American Blower Axial Fans; (2) Ventura Attic Fan, Model C; (3) Type "V" Fans with Cast Iron Housings; (4) Corrosion Resisting Fans; (5) Heavy Duty Fan; (6) Hay Curing Fans. Series of catalogs giving full specifications, installation information, capacity tables, typical installations, etc. 32, 4, 40, 16, 70, and 28 pp., all illus. American Blower Corp., 811 Tireman Ave., Detroit, Mich.*

Emerson-Electric Fans for 1947. Catalog of a complete line of fans, with design and construction specifications, performance data, dimensional information. Included are various types of desk fans, air circulators, ceiling fans, kitchen ventilators, exhaust and cooler fans. 28 pp., illus. The Emerson Electric Mfg. Co., St. Louis 21, Mo.*

FLOORS

Norton Floors: Non-Slip, Wet or Dry. Folder describing alundum terrazzo aggregate floors, stairs and ramps. How made, where used, colors and sizes, specifications. Alundum cement floor aggregate, ceramic mosaic tile, stair and floor tile also included. 14 pp., illus. Norton Co., Worcester 6, Mass.*

GLASS BLOCK

PC Glass Blocks: A Modular Product. Typical applications of glass blocks in industry, hospitals, schools, etc.; technical and performance data; catalog of sizes and patterns available; layout tables; installation details; accessories; specifications; curved panel installation requirements with table of radii limits. 20 pp., illus. Pittsburgh Corning Corp., 632 Duquesne Way, Pittsburgh 22, Penn.*

GYM SEATING

(1) Modern Gymnasium Seating; (2) Modern Gymnasium Seating Capacity. Prepared for the Gymnasium Seating Council by Harold R. Sleeper, A.I.A. Two bulletins giving detailed description of various gymnasium plan types and seating plans. Tables of dimensions and space requirements, advantages of folding seats, photos of typical installations (1); analysis of the need for gymnasium seating in various sections of the country and in schools of different sizes (2). 12 and 4 pp., illus. The Producers' Council, Inc., 815 15th St., N.W., Washington 5, D. C.

HEATING, VENTILATING

The American System of June-Aire, Winter Air Conditioning for Schools, Churches, Public Buildings. Description and diagrams of a heating and ventilating system featuring continuous ventilation of every room, controlled humidification, clean filtered air, automatic firing, thermostatic temperature control. 4 pp., illus. American Foundry and Furnace Co., Bloomington, Ill.*

Products for Heating, Ventilating, Air Conditioning. Catalog of a line of products used in a variety of installations from department stores and office buildings to aviation wind tunnel testing. Equipment includes Texrope V-belt drives, centrifugal pumps, a-c and d-c motors, a complete line of motor control, dry-type transformers and a-c and d-c welders. 12 pp., illus. Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

South Wind Sealed Heat. Brochure outlining the principles of a home heating unit, and describing the advantages claimed. Intended for consumers, it gives non-technical information about installation and operation. 6 pp., illus. South Wind Division, Stewart-Warner Corp., 1514 Drover St., Indianapolis 7.

KITCHENS

(1) America's Finest Gas Range; (2) A Brochure of Kitchen Planning Ideas; (3) A Guide for Buying Your Next Range; (4) Roper Gas Ranges Give a New Lift to Living. Four new booklets illustrating the current Roper line of gas ranges, describing in detail their various features, and giving general information. 64, 16, 16, and 32 pp., illus. Geo. D. Roper Corp., Rockford, Ill.

LATHING, PLASTERING

What You Should Know about Modern Lathing and Plastering. By Erwin M. Lurie. Basic facts and features assembled to show the advantages of lathing and plastering. Includes modernization notes, painting suggestions, general information for lay consumption. 16 pp. Natl. Foundation for Lathing and Plastering, Inc., 173 W. Madison St., Chicago 2, Ill.

LIGHTING

Fluorescent and Incandescent Lighting Equipment (Catalog 47). Condensed catalog listing all current items in the Curtis line. Includes coefficient of utilization charts, specifications and full information on fluorescent and incandescent units, reflectors, fittings and accessories. Price list separate. 16 pp., illus. Curtis Lighting, Inc., 6135 W. 65th St., Chicago 38, Ill.*

G-E Lamp Bulletin: Incandescent, Mercury, Fluorescent. Comprehensive manual on the design and operation of incandescent, mercury and fluorescent light sources. Technical information, tables, charts, discussions, color temperature scale, characteristics, etc. 76 pp., illus. General Electric Co., Lamp Dept., 570 Lexington Ave., New York 22, N. Y.* *40 cents.*

A Miracle of Light. Bulletin describing four classes of Lustra fluorescent tubes. Points out the features of the line, highlights construction details, and specifies recommended uses of each class. Also includes description of two types of Lustra fluorescent starters. 4 pp., illus. Lustra Corp. of America, 40 W. 25th St., New York 10, N. Y.

Rambusch "Aura." Folder describing a new lighting unit available in three standard lengths, convertible to give downlighting as well as indirect. Diagrams, specifications, features. 4 pp., illus. Rambusch, 2 W. 45th St., New York 19, N. Y.

PIPE UNITS

Specification Data for Engineers and Architects: Ric-wiL Prefabricated Insulated Pipe Units. Specifications for underground pipe distribution systems employing prefabricated insulated pipe conduit. Data arranged in tabular form with supplementary diagrams and charts. Construction details of Ric-wiL insulated pipe units and available accessories. 16 pp., illus. The Ric-wiL Co., Cleveland, Ohio.*

PLUMBING

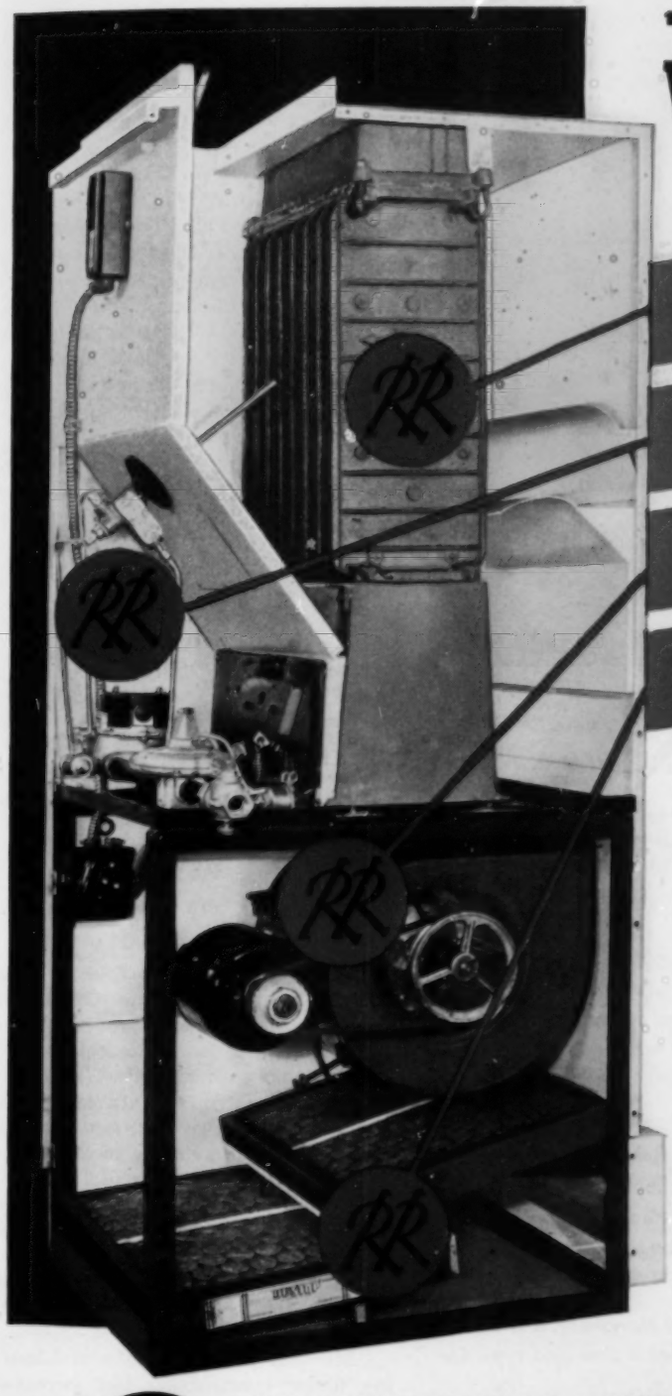
Toilet Compartments and Toilet Room Environments (Catalog 85). Catalog containing the latest structural and design improvements in five types of toilet compartments, shower stalls and shower cabinets. Complete specifications, construction details, available finishes. Color chart shows 15 standard

(*Continued on page 156*)

* Other product information in Sweet's File, 1947.

Engineered for Longer Life

. . . new Richmond Winter Air Conditioner



NEW CAST-IRON-CHROME ALLOY . . . heat exchanger lasts longer under higher temperatures.

MORE EVEN PERFORMANCE . . . limit control prevents unit from overheating.

IT'S QUIETER . . . blower fan floats on rubber.

SPUN GLASS FILTER easily renewed.

You can specify the new Richmond Winter Air Conditioner with confidence. Its heart—the heat exchanger—gives greater protection against overheating . . . assures longer service life.

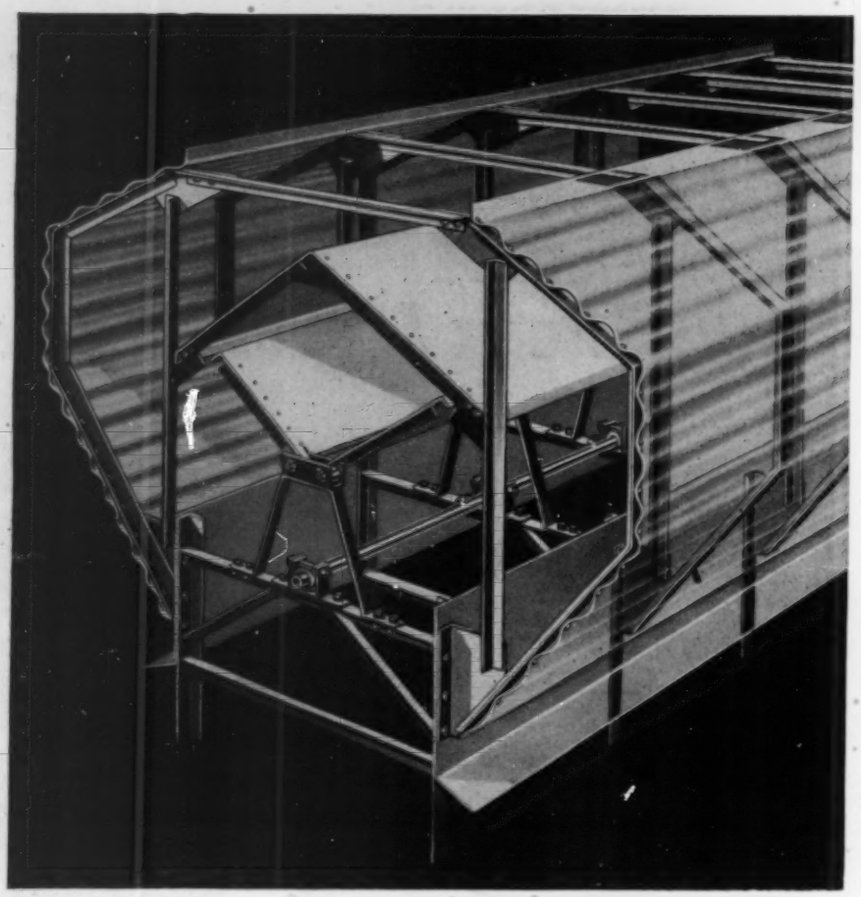
A single unit in a smart Dulux white enamel finish, completely packaged, it fits in home, office or store. Heats, humidifies, circulates, filters . . . comes in four sizes . . . occupies only about 4 to 6 sq. ft. Covered by both AGA approval and a one-year replacement guarantee. Write Richmond Radiator Company, 19 E. 47th St., New York 17, N. Y.

FACTORIES AT METUCHEN, N. J., MONACA, PA., NEW CASTLE, DEL., UNIONTOWN, PA. (2)

RICHMOND RADIATOR COMPANY

Affiliate Reynolds Metals Co.

Enameled Cast Iron Ware • Vitreous China • Porcelain-Glass • Gas Boilers • Gas Water Air Conditioners • Gas Gravity Furnaces • Radiators



FUNCTIONAL

THE BURT MONOVENT TRANSFORMS ROOF RIDGES INTO GIANT AIR VALVES

On plants equipped with Burt Monovent Continuous Ridge Ventilators, the roof ridge performs a new function. Installed along the entire length of the building, the Monovent transforms the ridge into a gigantic valve that exhausts heat, smoke, and fumes quickly and economically. Installation may also be made on flat roofs, on saw tooth construction and on roof slopes.

Special Burt designed brace frames and carefully engineered sheet metal construction assure strength and long life. Center hinge butterfly-type dampers combine with the Monovent's fixed top to form the cone-shaped airflow section that has been thoroughly proven in Burt's Free-Flow round ventilator.

Write for catalog and data sheets on the Burt Monovent. It is one of Burt's complete line of ventilators, which includes a size and type for every need.

WRITE FOR CATALOGS AND DATA SHEETS

The BURT MFG. Co.

48 E. South Street Akron 11, Ohio, U. S. A.

VENTILATORS, LOUVERS, OIL FILTERS AND SHEET METAL SPECIALTIES

THE RECORD REPORTS

(*Continued from page 16*)

MATERIALS ROUNDUP

The continued high rate of building material production indicates an increasing flow of most materials, the Construction Division, Department of Commerce, states in its May Construction and Construction Materials Report.

March production of lumber, says CD, was estimated at 2,831 million board feet, 9 per cent over February. Total production during the first three months of this year was 7,967 million feet, nearly 20 per cent above the corresponding period in 1946. Stocks of lumber in the hands of wholesalers and retailers at the end of March totaled 3.6 billion board feet, a gain of about a billion feet over stocks on Dec. 31, 1946.

Also showing increases in March over February production according to CD were fabricated structural steel, common and face brick, clay sewer pipe, gypsum board and lath, portland cement, asphalt roofing materials, cast iron pressure pipe, concrete building block, wire nails and staples, cast iron radiation.

CD warns, however, that current reports indicate that the hardware trade will not be able to fill consumer needs before 1948. March output was about the same as in the previous two months, and distributors inventories are almost non-existent. Shortages throughout 1947 are to be expected also in insect screen cloth because of the limited supply of rods and wire for fabrication of mesh.

WHAT THEY SAY . . .

About Rental Housing

Cooperative housing projects, even though financed under the GI Bill of Rights, are unlikely to prove an adequate substitute for the rental housing which so many veterans need. There are several apparent disadvantages implicit in most cooperative ventures. "One is the prospect of having to meet competition from lower priced rental quarters in the future. Another is the possibility of a general foreclosure because one or two of the cooperating parties may be unable to carry their part of the common burden." — National Committee on Housing, Inc., in *Tomorrow's Town*.

"Although the volume of rental housing under construction has increased somewhat as compared with last year, there still are far too few rental units being built to meet the veteran demand. It has been adequately demonstrated that the continuation of rent ceilings is the greatest obstacle in the way of this essential type of residential building. There still is time to start and complete

(*Continued on page 134*)

Why Metal Windows?

All over America architects, engineers, contractors and builders are planning ahead today for the homes and apartments of tomorrow. In each living unit they know there must be new features to increase beauty and utility. One feature every home and apartment should have is steel windows—because steel windows not only offer greater utility but add to the beauty and lasting good appearance of any type of architecture. So consider these eight advantages Ceco metal windows offer:

1. Tighter weatherseal—precision engineering keeps out cold, dust, rain; keeps heat in.
2. Give more light—afford from 20% to 60% greater light area. Also increase wall space.
3. Lowest initial cost installed—with metal windows maintenance cost is cut to the minimum.
4. Easy to install—no weatherstripping. Less labor in installing hardware. No planing.
5. Controlled ventilation—up to 100% . . . catches stray breezes . . . controls drafts.
6. Easier operation—always fit . . . no sticking, warping or swelling to worry about.
7. Fire safety—Ceco metal windows are fire resistive, reduce fire hazards.
8. Easily washed from inside—both sides of the windows can be washed from within.

CECO ALL-ALUMINUM STORM WINDOWS AND METAL FRAME SCREENS provide year 'round controlled ventilation in metal casements. New beauty and utility are combined with ease of installation . . . from the inside!

CECO STEEL PRODUCTS CORPORATION

GENERAL OFFICES: 5701 West 26th Street, Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities

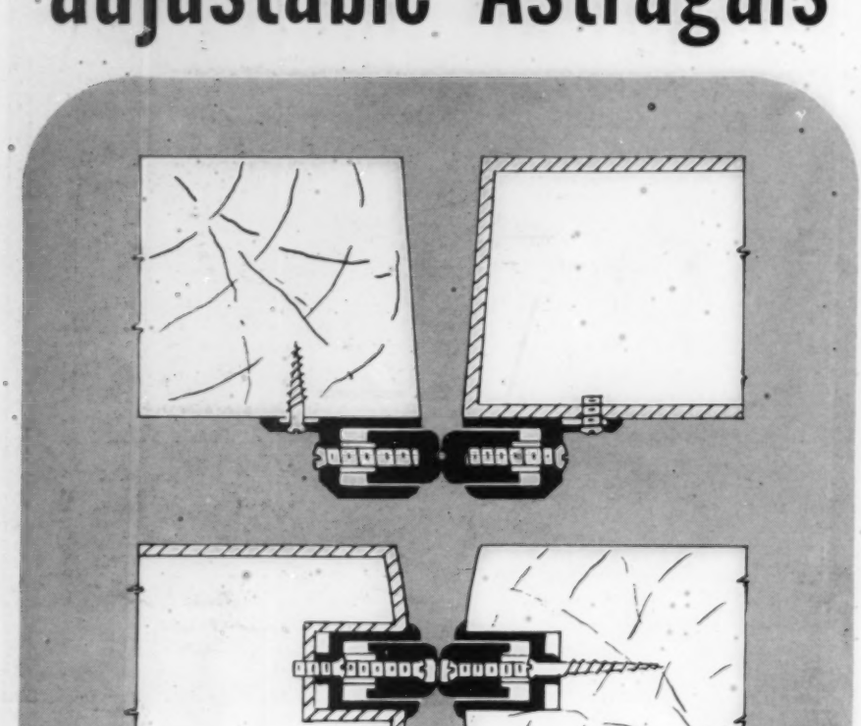
Other Ceco products include—Meyer Steelforms, Reinforcing Steel, Steel Joists, Roof Deck, Metal Lath

CECO STEEL

METAL WINDOW INSTITUTE MEMBER

In construction products **CECO ENGINEERING** *makes the big difference*

MICHAELS
adjustable Astragals



Made of extruded bronze, aluminum or nickel, Michaels Adjustable Astragals compensate for the expansion or contraction of doors. By keeping doors closed as tightly as possible, you eliminate drafts, air currents, and help to keep out dirt and dust. These astragals are simple, practical, rugged... easily installed and adjusted, and are available in several styles for any type of door. Type "A" shown in the illustration at the top, may be applied to either wood or hollow metal bevel doors. Or as a stop bead, or at the bottom of doors. Type "E" shown in the second illustration may be applied to bull-nose hollow metal or wood double doors, or at the bottom of doors. Folder containing complete details and specifications will be sent on request. We shall also be glad to send you information on any or all of the other products manufactured by Michaels.

MICHAELS PRODUCTS

Fixtures for Banks and Offices
Welded Bronze Doors
Elevator Doors
Elevator Enclosures
Check Desks (standing and wall)
Lamp Standards
Marquise
Tablets and Signs
Name Plates
Railings (cast and wrought)
Building Directories
Bulletin Boards
Stamped and Cast Radiator Grilles
Grilles and Wickets
Kick and Push Plates
Push Bars
Wrought Iron and Bronze Lighting Fixtures
Wire Work
Cast Thresholds
Extruded Thresholds
Extruded Casements and Store Front Sash
Bronze and Iron Store Fronts
Bronze Double Hung Windows
Bronze Casement Windows

THE MICHAELS ART BRONZE CO., Inc., 234 Scott St., Covington, Ky.

Member of the National Association of Ornamental Nonferrous Metals Manufacturers

THE RECORD REPORTS

(*Continued from page 132*)

thousands of additional rental units this year if ceilings are terminated now, whereas the number will be greatly reduced if no action is taken until Congress can fit this legislation into its crowded schedule." — DOUGLAS WHITLOCK, *Chairman, Building Products Institute.*

Architectural Design

"The war and the present housing shortage will have a tremendous influence upon architectural design. The necessity for the speediest possible construction has required most careful and efficient planning. Many standard materials were unobtainable so substitute materials had to be found and new, more scientific methods of construction adopted. The architect has been forced to experiment, to become more of an investigator. This is bound to have a tremendous influence upon the architecture of tomorrow. . . .

"New and better materials have been found and tested, such as glass brick, plastics and other synthetic products, old materials have been used in better ways, such as laminated wooden beams and trusses; improved methods of construction have been developed and the construction industry has become more mechanized and better organized." — FREDERICK A. GODLEY, *Professor of Architecture, Yale University.*

NEW YORK BUILDS

Proposed construction expenditures in New York City amounted to $68 million in March, almost twice as much as in February. The number of plans filed rose from 4752 in February to 4871 in March, according to a report submitted to Industrial Commissioner Edward Corsi by the Division of Placement & Unemployment Insurance.

The greatest expenditure planned in March was for the construction of residences: $45,590,000 as compared with $17,465,000 the previous month. The number of dwelling units provided in the 628 buildings for which plans were filed was 5549.

Estimated costs of plans filed for industrial and commercial building were more than three times greater than in February and the number of plans filed also increased. Nine public buildings were planned, five more than in February, but total dollar volume dropped more than a million dollars. More plans were filed for alterations and repairs, and estimated costs were higher.

MICHIGAN HOSPITALS

A report has just been published on a survey of Michigan's hospital needs,

(*Continued on page 136*)

STEEL DECK... Goes to SEA!

The Decks of the "Delaware Belle", new Wilson Line Excursion Boat, are of Mahon Steel Deck rolled from Yoloy.

The all-welded, all-steel constructed "Delaware Belle". All three of the upper decks are Mahon Steel Deck rolled from high tensile, low-alloy Yoloy.

. . . Versatility of MAHON STEEL DECK Permits Myriad of Uses in Modern Construction

Mahon Steel Deck, rolled from high-tensile, low alloy Yoloy, was used for decks of the all-welded, all-steel constructed "Delaware Belle", of the Wilson Line, illustrated here . . . this is typical of numerous new applications by alert designers in which Steel Deck solved their problem of light weight construction with adequate strength and rigidity. You will find that Mahon Steel Deck, due to its basic design, with narrow, vertical-leg stiffening ribs, lends itself to a broader range of uses in modern construction. See Mahon's Insert in Sweet's File for complete information, specifications and latest construction details, or consult a Mahon representative.

THE R. C. MAHON COMPANY

Home Office and Plant, Detroit 11, Michigan

Representatives in all Principal Cities

Manufacturers of Steel Deck for Roofs, Sidewalls, Ceilings, Floors, Partitions and Doors. Also Roof Sumps and Recesses, Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.

MAHON

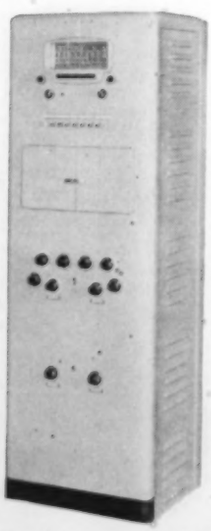
HOTELS

The voice that says it's modern!

The kind of modern planning hotel men expect from architects today! Every convenience, every safety precaution must be included in your designs. Of these, a natural-voice Stromberg-Carlson Sound System is a basic requirement. It makes profits, too! Invites customers into restaurant and cocktail lounge. It protects while it entertains, clearing any section of the hotel in case of emergency.

What's more, it fits into your architectural plan unobtrusively, efficiently. Speakers may be supplied with a coin-operated device to provide additional revenue for the hotel.

Consult your local Stromberg-Carlson Sound Equipment distributor. He is listed in your phone book. Or write for free booklets describing Stromberg-Carlson Sound Equipment for hotels ☐ schools ☐ churches ☐ offices ☐ industrial buildings ☐. (Check information desired). Address: Stromberg-Carlson Co., Sound Equipment Division, Dept. A-7, 100 Carlson Road, Rochester 3, New York.



The heart of any modern hotel sound system. Stromberg-Carlson Standard Sound System Model 750. Compact glacier gray cabinet contains AM-FM radio receiver, record player, all controls and amplifiers. Allows central control of maximum volume.

In the rooms—pleasant entertainment for guests . . . "on guard" for emergency announcements.

In banquet rooms—insures full enjoyment for all at banquets and special entertainments.

STROMBERG-CARLSON

NATURAL-VOICE SOUND SYSTEMS

THE RECORD REPORTS

(*Continued from page 134*)

made by the Commission on Hospital Care to establish a pattern for other states to follow in meeting the requirements of the Hospital Survey and Construction Act. Findings of the Commission include:

1. Michigan has 71 natural hospital areas, which subdivide into 20 regional and 51 community hospital centers, the latter grouped around the regional centers to form an integrated hospital system. Local health centers would be provided for the still smaller rural communities.

2. Michigan now has 292 general and "allied special" hospitals, providing care and treatment for the acutely ill and injured. These 292 institutions have 19,361 beds, of which 14,567 are in permanent structures suitable for continued used in the communities they serve. About 11,000 beds should be provided as replacements or additions in this type of institution.

3. The state should have 181 local health centers, with diagnostic facilities and facilities for emergency treatment.

4. No general hospital exists now in three rural hospital areas. In 14 other rural areas the existing hospitals should be abandoned and replaced. In still others the existent institutions require modernization and enlargement.

CONFERENCE PLANNED

The Massachusetts Institute of Technology has announced that its 10th annual Conference on City and Regional Planning will be held from Sept. 15–27, 1947. Sponsored jointly by the Institute and the American Society of Planning Officials, it will be open to men and women who have had practical experience in planning or in a related professional field, including planning technicians, members of state or municipal planning commissions and housing authorities, and staff members of engineering or public works departments.

Seminars will be held each morning and afternoon, and will cover principles and techniques of planning and planning legislation and administration. Emphasis will be placed on technical and administrative procedures and the application of approved planning standards rather than on a generalized discussion of the various planning problems for which solutions are needed.

The staff for the Conference will again consist of Prof. Frederick J. Adams, head of the Department of City and Regional Planning, and Mr. Flavel Shurtleff, lecturer on Planning Legislation and Administration at M.I.T. and counsel to the American Planning and Civic Associations. Visiting lecturers on special

(*Continued on page 138*)

HOTEL ROWE, GRAND RAPIDS, MICH.
B. K. Gibson, Architect

Decoration - Plus

fabron — OFFERS WHAT YOU WANT MOST IN A WALL FINISH

REG. U.S. PAT. OFF.

Color and design are generally considered primary factors in the selection of materials for finishing interior walls.

While attractive appearance is important, it is of equal importance that the decorative treatment be practical, economical and as permanent as possible to serve adequately through the many years the building is in operation.

FABRON—the fabric-plastic-lacquer wall covering, engineered to meet the architects' standards—performs the **dual function** of a **decorative finish** and a **structural agent.** It not only conforms to your every requirement as an architect, but also, due to its durability, its easy maintenance and its economy, meets the subsequent needs of those for whom the building is planned—your clients.

CONTRAST THESE **FABRON** FEATURES AGAINST OTHER WALL FINISHES

- **It offers a wide range of colors and designs to answer every decorative need.**
- **It reinforces plaster, conceals imperfections and prevents cracks.**
- **It is non-porous, waterproof, thoroughly and easily washable — requires a minimum of maintenance.**
- **It is sunfast and sanitary.**
- **It resists scuffing — does not scale.**
- **It withstands hard wear and can be invisibly patched.**
- **It is permanent — eliminates periodic redecorations. After many years of service, when it has outlived its original decorative function, it offers an ideal base for paint or any subsequent wall finish.**
- **FABRON prevents fire spread — listed and approved by the Underwriters' Laboratories, Inc.**

All these features combined make FABRON the most economical and desirable wall and ceiling finish for hotels, institutions, etc., from the angle of both the architect and his client.

FREDERIC BLANK & CO., INC. *Established 1913* 230 PARK AVENUE, NEW YORK 17, N.Y.

Hospitals ☐ Hotels ☐ Schools ☐ Theatres ☐

FREDERIC BLANK & Co., Inc. AR 7-47
230 Park Ave., New York 17, N. Y.
In reference to type of building checked please send further information about Fabron.
Name .....
Address .....
City ..... Zone..... State .....

☐ Offices ☐ Apartments ☐ Restaurants ☐ Residences

A SIMPLIFIED HEATING SYSTEM

Wraps the home in a blanket of warmth

HEALTHFUL WARMTH *from wall to wall—from floor to ceiling*

Designed and engineered to meet modern construction requirements. Easily installed—piping is run around the inside of the exterior wall of the house or building and is concealed behind attractive baseboard.

Heating sections (fin radiation), replacing parts of the piping in the attractive baseboard, with concealed louvres, provide clean, comfortable warmth to the room.

DUNHAM HEATING MEANS BETTER HEATING!

C. A. DUNHAM COMPANY
450 E. Ohio St., Chicago 11, Illinois

GENTLEMEN: Send me Bulletin A. R. so that I may have complete details about the new Dunham Baseboard Heating System.

B-7471-E

Name_____
Title_____
Company_____
Address_____
City_____ Zone_____ State_____

THE RECORD REPORTS

(*Continued from page 136*)

topics will assist in the conduct of the seminars.

Applications should be sent to Prof. F. J. Adams, Massachusetts Institute of Technology, Cambridge 39, Mass., not later than Sept. 2nd.

NEW YORK CHAPTER, A.I.A. ELECTS

Harold Reeve Sleeper was elected president of the New York Chapter of the A.I.A. at its annual meeting last month. For the past two years Mr. Sleeper has served as chairman of the technical committee of the Chapter.

Elected to serve with him are Daniel Schwartzman, vice president; Francis W. Roudebush, secretary; and William Potter, treasurer.

U. N. COMPETITION URGED

The A.I.A. has formally proposed to the United Nations that an architectural competition be held in the designing of one or more of the major buildings which will make up the U.N. Center in New York City, according to Douglas W. Orr, Institute president.

"It is our recommendation," Mr. Orr said, "that the competition be open to architects from all nations participating in the U.N. A committee of the Institute is being appointed to confer with U.N. officials regarding the possibility of such a competition.

"It is our understanding that it will not be possible to conduct competitions for the design of all U.N. buildings, because competitions necessarily require somewhat more time than the usual methods of design and because the first buildings must be completed at the earliest possible date in order to provide suitable permanent administrative quarters for the staff.

"Nevertheless, it is entirely feasible to select one or more of the central buildings as subjects for an international competition, which should be open to all architects everywhere."

AT THE COLLEGES

Industrial Design Course

The California Institute of Technology, Pasadena, has added to its curriculum a professional course in industrial design on the graduate level. Instruction will be by Harry R. Greene and Salvatore Merendino, both members of the Pasadena firm of Industrial Design Associates.

New Head for R. I. School

Max W. Sullivan, dean of the Rhode Island School of Design for the past year, has been named president of the

(*Continued on page 140*)

Steel wears a raincoat of grease in transit....

The coating of grease with which metals are treated for shipment, keeps them safe from moisture, rust and corrosion.

Buildings keep dry with

KOPPERS ROOFS

Koppers coal tar pitch roofs give similar protection to buildings. Water may stand for long periods on roofs . . . and if those roofs are constructed of Koppers Old Style Pitch and Tar-saturated Felt, the water has practically no damaging effect.

That's why Koppers roofs are good for flat roofed homes, and for commercial buildings, many of which utilize the roof for cooling purposes in summer. And that's why, also, that Koppers roofs withstand the severity of rains and snows throughout the years.

Sun's rays, too, are less damaging to a Koppers coal tar pitch roof, because of its property of "cold-flow" by which cuts and cracks heal themselves.

When you specify roofing, consider these advantages of Koppers Old Style Pitch and Tar-saturated Felt.

KOPPERS COMPANY, INC.
PITTSBURGH 19, PA.

Naturally, a Koppers roof for long life

ROOFING & WATERPROOFING

Refer to your Sweet's Catalog or write us for complete specifications

School to succeed Mrs. Murray S. Danforth, who resigned early in May.

Mr. Sullivan, a graduate of Western State Teachers' College at Kalamazoo, Mich., holds a Master of Arts in the teaching of Fine Arts from Harvard University. He was formerly instructor in arts and crafts at the Cranbrook School at Bloomfield Hills and at the Middlesex School, Concord, Mass. He will be succeeded in the post of dean at Rhode Island by Albert E. Simonson, architect and former instructor in architectural design and history at the Cambridge School of Architecture, Smith College, and the Harvard Architectural Summer School.

Farmhouse Planning

Basic farmhouse plans will be developed at the University of Illinois under a new project to be carried on by the College of Agriculture in cooperation with the Small Homes Council.

Robert Benninghof (center) shows his prize-winning model home in University of Minnesota competition to fellow architectural students James Hirsch (left) and Ted Sugano (right). The three shared a $100 award by the Home Institute, Northwestern National Bank, Minneapolis

The project is to be carried out and reported by late summer. Among those directing it will be Professors Deane G. Carter and Keith Hinchcliff, agricultural engineers; Prof. Henry W. Gilbert, landscape gardening expert; Miss Margaret Goodyear, home economist; Prof. William H. Scheick, coordinator of the Small Homes Council; and Robert P. Simon, architectural designer of the Small Homes Council staff.

Department Reorganized

Changing emphasis in the field of landscape architecture and the need for trained men in the closely allied field of urban planning has been recognized at Michigan State College by reorientation of the former Department of Landscape Architecture.

A major curriculum has been added for the study of urban planning, and the name of the department has been changed to the Department of Landscape Architecture and Urban Planning.

Students working in the field of city planning will study methods of collecting and using basic data, appropriately arranging the different kinds of land uses, devising and applying protective regulations, traffic control and arranging systems of major thoroughfares, and planning law pertaining to zoning, platting and housing.

The landscape architecture curriculum has been changed to broaden the training and afford greater professional opportunities to graduates. This is in line with the modern conception of landscape architecture as the art of arranging land uses, requiring a thorough knowledge of engineering and architecture. Professor Harold Lautner is head of the reorganized department.

EXHIBITIONS

Architectural League

An exhibition preview of 25 projects in the process of planning or construc-

(*Continued on page 142*)

Blodgett
FIRST AGAIN WITH MONEL
Ovens
The No. 959, one of 22 Blodgett models now also available in Monel
Now you can buy Blodgett's De Luxe No. 900 Series ovens in #35 MONEL, including complete exterior and all interior surfaces normally subject to corrosion (except shelves). This gleaming, polished metal adds to Blodgett's other famous features: Longer life Greater beauty Amazing cleaning ease Freedom from service worries. Write today for descriptive folder.
THE G. S. BLODGETT CO., Inc.
50 LAKESIDE AVE. BURLINGTON, VERMONT

It's New!

THRUSH

Ajustaflo

SINGLE MAIN SYSTEM OF

FORCED HOT WATER HEAT

THRUSH WATER CIRCULATOR

THRUSH FLOW CONTROL VALVE

THRUSH *Adjustable* TEE ONE PIPE FITTING

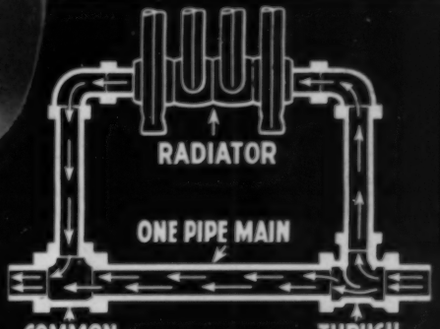


DIAGRAM SHOWING DIVERSION AND FLOW THROUGH MAIN AND RADIATOR

HERE'S A REAL improvement in the single main method of forced circulating hot water heat. The Thrush Adjustable Tee greatly increases heating efficiency by diverting just the right amount of water to each radiator and simplifies the balancing of the system after installation. The curved diverter in this Tee may be moved to accurately adjust the amount of hot water passing from the main through the radiator, giving control of radiator temperature and making it possible to obtain uniform heat in every room. Flow of water through the main is increased . . . not throttled . . . when branch flow is cut down by this method. For more information, write Department J-7 or see your wholesaler.

H. A. THRUSH & COMPANY · PERU, INDIANA

tion — "Tomorrow's Buildings" — is on view at the Architectural League of New York, 115 E. 40th St., through September 15.

Described as a "flexible review of architectural progress in 1947," the exhibit is confined to projects in the planning or construction stage; at three-week intervals throughout the summer the projects shown will be replaced or added to, so that the exhibit will reflect progress during the summer months.

Featured in the opening group of projects last month were 11 original perspective drawings showing various preliminary schemes studied by the Board of Design Consultants responsible for the planning of U.N. headquarters.

Museum of Modern Art

The summer season at the Museum of Modern Art, New York City, opened on June 11th with a large double exhibition filling two floors, "The Alfred Stieglitz Exhibition: His Photographs and Collection." One section is devoted to the modern paintings, sculpture, drawings and prints assembled by Stieglitz, and the other to a retrospective showing of Stieglitz' own photography. The former will be on view until August 31st, the latter through September 21st.

On June 25th the Museum opened three smaller exhibitions, all of which will remain on view through the summer months. "Two Cities: Planning in North and South America" shows the Michael Reese redevelopment scheme for seven square miles of Chicago's South Side slums and the building of an entirely new city in Brazil 25 miles from Rio de Janeiro. "Robert Maillart: Engineer" is the first presentation in New York of the bridges and buildings designed by Robert Maillart, Swiss engineer (see ARCHITECTURAL RECORD, June, 1947, pp. 84–87). "Boris Aronson: Stage Designs and Models" presents the results of years of experimentation with techniques on stage lighting developed by Boris Aronson.

PHILADELPHIA PLANNING

An elaborate and unusual city planning display, the "Better-Philadelphia Exhibition," will be on view at Gimbel Bros., Philadelphia, from September 8th through October 15th, and will later be moved to permanent quarters.

Under the official sponsorship of the city, the exhibition will present changes and improvements recommended by the City Planning Commission — projects scheduled for 1947 to 1952, at an estimated total cost of $302,400,000. Features of the exhibit will be a 28 by 22-ft. diorama showing the city as it will look when all the proposed improvements have been accomplished; a circular theater 50 ft. in diameter with four stages showing how Philadelphia has grown from William Penn's "Greene Countrie Towne" to a metropolis, how neighborhoods decay, what will happen if decay is not checked, and how proper city planning can arrest decay and redevelop; and a three-dimensional model of the downtown area of the city, 440 sq. ft. in size, with rotating sections to transform it from its present-day to its future appearance.

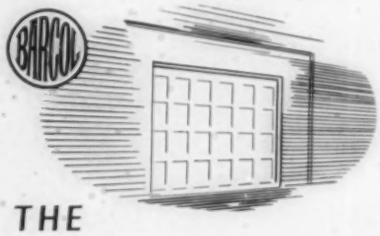
OFFICE NOTES

Offices Opened, Reopened

Joseph Di Stefano, Jr., has opened an office for the practice of architecture at 230 Boylston St., Boston, Mass.

Evans & Davis (F. A. Evans, Jr., and John T. Davis), Architects-Engineers, have announced the opening of an office for the general practice of architecture and engineering at 403 Fulton St., Troy, N. Y.

(*Continued on page 144*)



2 SIMPLE TESTS TO SHOW HOW THE

Barcol OVERdoor

IS WEATHERTIGHT AND EASY-WORKING...

1

Test 1. EASY-WORKING. The simplest and surest way to tell how well the Barcol OVERdoor works is . . . work it. Raise it . . . lower it. Note the "floating balance". Note the roller-bearing glide of the sections . . . upward and downward. No other overhead door works any easier!

2

Test 2. WEATHERTIGHT. To keep out weather, a door must close snugly . . . and a really snug door won't rattle. So . . . take hold of the handle on that same door that closed so easily . . . and try to rattle it. You can't . . . because the exclusive closing action of the Barcol OVERdoor insures all-around weathertightness . . . and easy operation!

See our Catalog in SWEET'S

Barber-Colman Company

102 MILL STREET • ROCKFORD • ILLINOIS

FACTORY-TRAINED SALES AND SERVICE REPRESENTATIVES IN PRINCIPAL CITIES

Granite gives Character to a building—

CHARACTER THAT'S RETAINED THROUGHOUT ITS LIFE!

Eleven colors and textures are available in The Rainbow Line of Granites. Architects throughout the Nation are using these granites to establish individuality, dignity and character to their designs. Granite affords a permanency that is otherwise difficult to achieve. Engineering advancements and quarrying and fabricating now bring installation costs within attractive range. Polished surfaces stay clean with simple washing; no other maintenance, for there is no moisture absorption; no expansion or contraction to these hard, northern, non-porous granites.

Thin, polished granite (veneer) is popular for both new construction and for refacing of old buildings. Other thicknesses and dimensions to economically meet every specification. Inquire of a Cold Spring representative near you or write The Cold Spring Granite Company, Cold Spring, Minnesota.

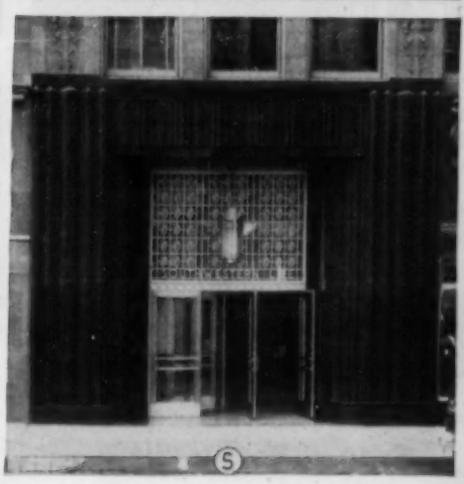
The Rainbow Line

1

2

3

4


5

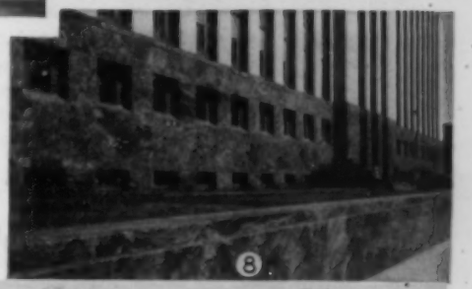
6

7

COLD SPRING GRANITE COMPANY

COLD SPRING • MINNESOTA

Sweet's file 4a/4 shows color reproductions.


8

1. East Branch First National Bank, Portland. Barrett and Logan, Architects. **2.** Federal Building, Los Angeles. Gilbert Stanley Underwood, U. S. Supervising Architect; W. E. Reynolds, U. S. Commissioner of Public Buildings. **3.** State Bank of Welston, Mo. Bernard Bloom, Architect. **4.** St. Louis Daily Record. Mauran, Russell and Crowell, Architects. **5.** Southwest Life Building, Dallas. Lang and Witchell, Architects. **6.** Boilermakers Union, Portland. Pietro Belluschi, Architect. **7.** Carl Greve Jewelers, Portland. Pietro Belluschi, Architect. **8.** Bankers Life, Des Moines. Tinsley, Higgins and Lighter, Architects.

THE RECORD REPORTS (*Continued from page 142*)

Edward B. Kirk, Inc. has opened offices at 2 Park Ave., New York City, to resume practice as lighting consultants. Mr. Kirk has just returned from long military service.

Victor B. Spector, R.A., and H. Eugene Montgomery, Associate, announce the opening of new offices for the general practice of architecture at 1057 W. Broad St., Falls Church, Va.

Wayman and Stuermer (Leonard Wayman and Ray Stuermer), Architects and Engineers, have announced the opening of offices at 37 S. Wabash Ave., Chicago 3, Ill.

New Addresses

The following new addresses have been announced:

Andrews & Clark, Consulting Engineers, 305 East 63rd St., New York 21, N. Y.

Elm Contracting Corp., Mason and General Contractors, 64 Metropolitan Oval, Parkchester, Bronx 62, N. Y.

Friedman, Alschuler & Sincere, Architects and Engineers, Brooks Bldg., 223 W. Jackson Blvd., Chicago 6, Ill.

Garfield, Harris, Robinson & Schafer, Architects, 1740 E. 12th St., Cleveland 14, Ohio.

Firm Changes

Victor A. Frid, A.I.A., of the firm of Ebbets and Frid, and Commander T. Merrill Prentice, U.S.N.R., A.I.A., formerly of the firm of Adams & Prentice, have announced the formation of a partnership for the practice of architecture under the firm name of Ebbets, Frid & Prentice, with offices at 862 Asylum Ave., Hartford, Conn.

John M. Morse and Fred Bassetti have announced the formation of a partnership under the firm name of Bassetti & Morse, Architects, with offices at 509 Fourth and Cherry Bldg., Seattle 4, Wash. Mary Bassetti is associated with the firm for the design of interiors.

Reinhard & Hofmeister, Architects (L. Andrew Reinhard, A.I.A., and Henry Hofmeister, A.I.A.), of 145 E. 32nd St., New York 16, N. Y., have taken into partnership John A. Walquist, R.A., an associate for 15 years, and have changed the name of their firm to Reinhard, Hofmeister & Walquist, Architects. Richard H. Granelli has been made an associate in the firm.

Edward K. Schade has become an associate member of the firm of Mitchell & Ritchey, Architects, 524 Fourth Ave., Pittsburgh, Penn.

Preston S. Stevens, James R. Wilkinson and Associates, formerly engaged with the late Flippen D. Burge in the practice of architecture and engineering as Burge and Stevens, have announced the change of the name of their firm to Stevens & Wilkinson, Inc., with offices in their new building at 157 Luckie St., N.W., Atlanta, Ga.

Peter J. Trolio, A.I.A., and Jay T. Liddle, Jr., A.I.A., have announced the formation of a partnership under the firm name of Trolio & Liddle, Architects, with offices at Jackson, Miss.

ELECTIONS

Adrian N. Langius, of Lansing, has been elected president of the Michigan Society of Architects. Elected to serve with him are: *first vice president*, Earl W. Pellerin, Detroit; *second vice president*, Julian R. Cowin, Detroit; *third vice president*, Robert B. Frantz, Saginaw; *secretary*, Arthur J. Zimmermann, Lansing; *treasurer*, Lyle S. Cole, Detroit; *executive secretary*, Talmage C. Hughes, Detroit.

Austin Drewry, of Gunnison Homes, Inc., has been elected president of Prefabricated Home Manufacturers' Institute.

IMPLEMENT OF ARCHITECTURE

Schlage locks offer security, privacy, utility and convenience. The standardized Schlage cylindrical chassis allows locks to be interchanged as door usage conditions change. The cylindrical design affords a variety of lock functions to provide the perfect operation for every door. For further information see your builders' hardware man, or write direct to Schlage Lock Company, P. O. Box 3324, San Francisco.

SCHLAGE
LOCK COMPANY
SAN FRANCISCO • NEW YORK

SL-12

ORIGINATORS OF THE CYLINDRICAL LOCK

"WE CUT STEAM COSTS 48%
—and paid for conversion in 10 months"*

YOU SAVE 3 WAYS WITH ENTERPRISE *Oil Burners*
—IN EFFICIENCY, CLEANLINESS AND ECONOMY

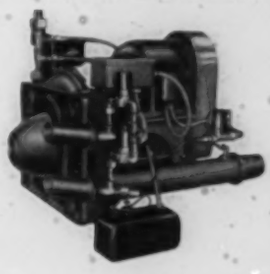
Cutting steam costs by almost half seems unbelievable. Yet this is but one of innumerable conversion jobs from old-fashioned, uneconomical combustion systems to Enterprise Oil Burners that proves the rule of exceptional savings in fuel costs, minimum upkeep, and continuous efficiency under the most exacting requirements.

A leader in the field, Enterprise manufactures rotary oil burners in a wide range of heavy-duty models—with a flexibility of application to meet the needs of modern building and industry in all its branches. Enterprise burners are furnished in Manual, Semi-Automatic and Fully-Automatic Models in combination with modulating fire control or any desired special combinations.

Whether you are considering combustion equipment for a new installation or as a replacement of obsolete units, plan to investigate Enterprise Burners. A call to your nearest Enterprise distributor, or a letter to the Combustion Equipment Division in San Francisco, will bring a prompt answer to questions regarding your particular problems.

* *From a statement by the Director of* THE DOCTORS HOSPITAL *in Seattle.*

Installed by Superior Engineering Co. of Seattle, two of these Model H2P Semi-Automatic Enterprise Oil Burners operate 24 hours a day producing 4,000 pounds of steam per hour for The Doctors Hospital heating, sterilizing and laundry needs.



ENTERPRISE
Oil Burners DISTRIBUTORS IN PRINCIPAL CITIES

COMBUSTION EQUIPMENT DIVISION OF
ENTERPRISE ENGINE & FOUNDRY CO.
18TH AND FLORIDA STREETS, SAN FRANCISCO 10, CALIFORNIA

DIESEL ENGINES • PROCESS MACHINERY • OIL BURNERS • HEAVY MACHINERY

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 124*)

FIRE ALARM SYSTEM

A quick means of detecting fires is offered by *DetectoMaster*, a thermostatic alarm system that sounds a klaxon-type horn whenever extreme temperature fluctuations are encountered in a guarded zone. An indicator needle on the panel board points to the number representing the affected area. The standard DetectoMaster covers 15 areas, but as many as 300 thermostatic detectors may be used in each area without overloading the capacity of the central control. In addition to detecting fires, this thermostatic alarm system may be used to give warning of low temperatures in areas where freezing is a hazard. Lord-Taber Co., Inc., Canandaigua, N. Y.

MORE STORAGE SPACE

Designed to provide about 30 per cent more storage space in the same size closet, *Revolvo-Door* turns on a central axis to expose a semicircular hanger rod and shelves for wearing apparel. The central core, located behind a mirrored door, has shelves for linen, or folded clothing and accessories. The closet requires a space 6 ft. wide, 6 ft. 8 in. high, and 3 ft. deep. Hardware is chrome throughout, including rods, pulls, and hinges. Coast Store Fixture Mfg. Co., Dept. AR, 142 N. LaBrea Ave., Los Angeles, Calif.

Entire closet rotates for easy access

AUTOMATIC COAL BURNER

The *Unifeed* coal burner unit for stoker-fed furnaces is confined for the most part within the heating plant in order to save furnace room space. Fan, transmission, and motor are mounted together on a steel plate so that the mechanism becomes a "drawer" that slides into a steel compartment under the furnace. Coal is fed automatically from bin to fire, with a capacity of 15 lb. of bituminous coal per hour. Direct drive eliminates sheaves and belts. An automatic air-measuring device is provided. Stoker Div., Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill.

UNIT HEATER

The *Shafco Suspended Unit Heater* is oil-fired and installed in single or multiple units on steel channel supports from building wall or roof trusses. The units are completely self-contained horizontal forced warm air furnaces, and require no separate furnace room, boiler house, or basement. The manufacturer suggests their use wherever floor space is at a premium; particularly in garages, stores, shops, factories, warehouses, salesrooms, and public buildings. Shafco Distributing Corp., 1354 Book Building, Detroit 26, Mich.

DDT WALLPAPER

DDT-treated wallpaper has been announced for children's rooms, designed to provide protection against disease-

(*Continued on page 148*)

We humbly apologize . . .

but not for these FABRICS that CANNOT BURN or smolder

Our April advertisement in these pages featured the Fiberglas* fabrics in the public rooms of the famous BELLEVUE-STRATFORD Hotel in Philadelphia. This installation—which includes dramatic wall coverings, window curtains and draperies to assure maximum fire-safety to patrons—was designed by Geisert, Henon & Winge and made by R. F. Mooney & Co. for Lit Brothers. We humbly apologize for the wrong credit line in that advertisement.

Fiberglas fabrics are *woven entirely of finely-spun inorganic glass* filaments; will not emit asphyxiating smoke or fumes if exposed to flame. Endorsed by all public safety officials.

WRITE FOR SAMPLES AND INFORMATION

THORTEL

FIREPROOF FABRICS

FIBERGLAS* Listed by Underwriters' Laboratories, Inc., as "Non-Combustible Fabric"; approved by the Bureau of Standards and Appeals, City of New York.

ARCHITECTS BUILDING, 101 PARK AVENUE, NEW YORK 17, N. Y. · LEXINGTON 2-0711

Sales representatives or recommended workrooms in: BOSTON, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, DENVER, DETROIT, LOS ANGELES, NEW ORLEANS, OAKLAND, PHILADELPHIA, PITTSBURGH, RICHMOND, SAN FRANCISCO, ST. LOUIS, TOLEDO, WASHINGTON

*T. M. Reg. U. S. Pat. Off. Owens-Corning Fiberglas Corp.

How BETTER LIGHTING contributes *Importantly* to Controlled Working Conditions

THE INTERNATIONAL LIGHTING Exposition
PLAN TODAY
A report on: Procedures for the Correction of Plant Seeing Conditions:
FACTS
A report on: Lighting...the No. 1 Tool in Controlled Working Conditions
FACTS
A Report On: Advancements in the Use of Light and Color To Improve Plant Lighting
FACTS
FACTS

4 REPORTS *JUST-ISSUED*

bring the FACTS to Architects and Clients

"Controlled Working Conditions covering light, air, temperature, dust and noise plagues," a leading industrial management editor states, "came into their own during the war . . . cutting labor turnover, increasing labor output, and achieving closer control over work standards."

Highest on List is Better Lighting... lighting which conforms to the latest and highest standards① . . . is one of the most important of the tools to control working conditions to the benefit of the employee while at the same time *more than paying its way* in increased production profits.②

Small wonder, then, that today industrial management is placing lighting *highest*③ on the list of things-to-be-done to achieve the happier working conditions which contribute so importantly to Better Employee Relations.

4 Free Reports to Aid Your Planning. To aid management in its consideration of all the phases of Lighting as a tool to control working conditions to the benefit of the employee . . . to the end that fatigue may be reduced . . . accidents minimized④ . . . happiness on the job increased . . . Benjamin Electric has just issued a series of four Reports:

Report 1. *Profiting from War Production Experience with Lighting*—How light solves problems of increased production, fatigue, over-age, deficient vision, safety, etc.

Report 2. *How to Use Light and Color to Improve Plant Lighting*—An appraisal of the use of Color to improve lighting, seeing and safety conditions.

Report 3. *Lighting...the No. 1 Tool in Controlled Lighting Conditions*—A check-list of Things-to-be-done in a plant improvement program.

Report 4. *Procedures for the Correction of Plant Seeing Conditions*—Contains a plant lighting score card for rating your lighting; uncovering needed lighting improvement; correction of improper lighting and maintenance methods.

① *American Recommended Practice of Industrial Lighting, American Standards Association.*

② *Case Reports by Illuminating Engineering Society, "Value of Good Lighting in War Production".*

③ *According to a recent poll by two leading industrial management magazines.*

④ *National Safety Council estimates 15% to 25% of all accidents are due to insufficient or improper lighting.*

BENJAMIN
Lighting Equipment
Distributed Exclusively Through Electrical Wholesalers

Benjamin Electric Mfg. Co., Dept. Q-1, Des Plaines, Ill.
Please send the four bulletins on Lighting as announced in ARCHITECTURAL RECORD.

NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

24125

(*Continued from page 146*)

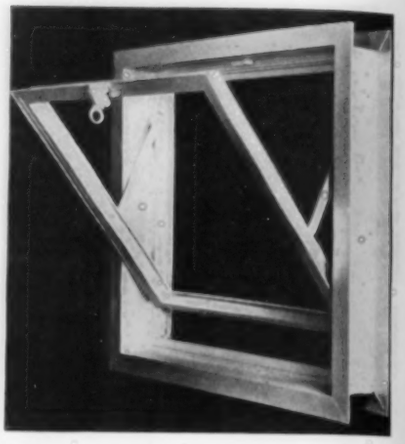
carrying insects. The insecticide is said to be harmless to humans and pets, will not rub off or wash off, and is guaranteed effective for one year. Designs are by the Walt Disney Studios. Trimz Co., 610 Merchandise Mart, Chicago 54, Ill.

FLOOR SEALER

A new varnish-type floor sealer, *Tuf-Seal*, has been developed for dance floors, gymnasium floors, and any wood flooring that receives abnormal traffic wear. This finish reportedly preserves the wood by sinking into its surface and preventing drying out and splintering. Gillespie Varnish Co., Dey St., Jersey City 6, N. J.

ALUMINUM WINDOWS

A new line of aluminum windows, called *Stormtite*, features tubular construction and welded corners. This construction is said to give increased strength, as evidenced by the windows designed for glass block walls which will carry the weight of glass blocks without lintels. Regular casement-projected windows are designed with elements that interlock during assembly. Also marketed are aluminum screens and storm windows. Albert Storms & Co., 101 Park Ave., New York, N. Y.



Aluminum window for glass-block walls

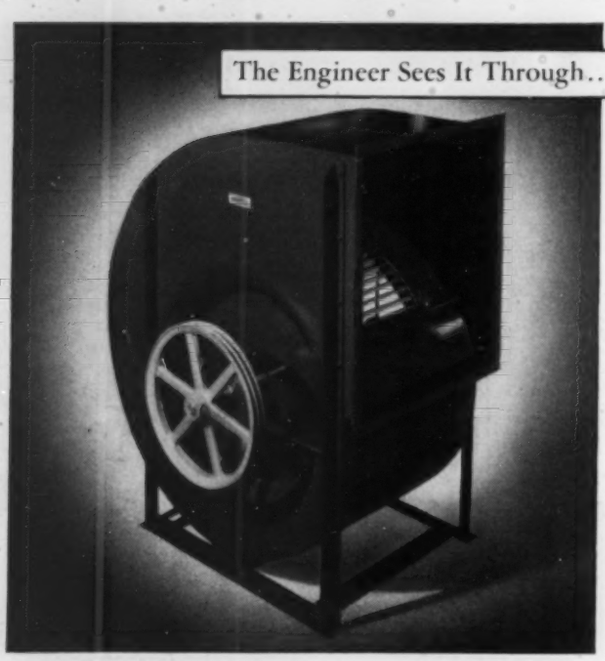
HOME LAUNDRY

The *All-Automatic Washer* is announced as the first washing machine with completely automatic operation from the time it is started until it has completed its 45-minute soak-wash-rinse-flush-dry cycle. Washing is done by an activator which soaks, flexes, and rubs the clothes 3 to 20 min., depending upon time selected. In the 8-min. drying cycle, clothes are spun at high speed. If desired, the machine can be controlled manually, in order to skip or repeat any operation in the cycle. It is a rectangular top-opening machine, 36 in. high, without exposed moving parts, and controlled by an automatic water shut-off in the event of power failure. Home Laundry Equipment Div., General Electric Co., 1285 Boston Ave., Bridgeport 2, Conn.

SOUND SYSTEM

Especially designed to provide factories, plants, and large offices with an address system as well as recorded "music at work," the *Model P-20 Console* combines in a single cabinet all central control elements needed for a system of up to 50 watts. "One-button" control permits the announcer to speak from any microphone location without going to the central control. The record changer handles either 10- or 12-in. recordings, and turns off automatically at the end of a series. Dimensions of the console are 26¼ in. long, 17 1/8 in. wide, and 40 1/8 in. high. Executone, Inc., 415 Lexington Ave., New York 17, N. Y.

(*Continued on page 150*)



Blowers···built to serve and serve!

Heavy gauge steel, hydraulic riveting, and feather-sensitive balance all help to make good, long-lasting blowers. But the factor that makes usAIRco blowers *exceptionally* long-lived and trouble-free cannot be seen in the frame, the cone, the blades, the backplate, or the bearings. That factor is *engineering follow-through.*

In specifying usAIRco blowers, you buy much, much more than merely fine machinery. You get shrewd, expert knowledge of air-movement. You have as working partners men who know the job and will help you see it through. Call us in on your next blower installation, and see what this means!

UNITED STATES AIR CONDITIONING CORP.
Minneapolis 14, Minnesota

Factory Representatives in Principal Cities

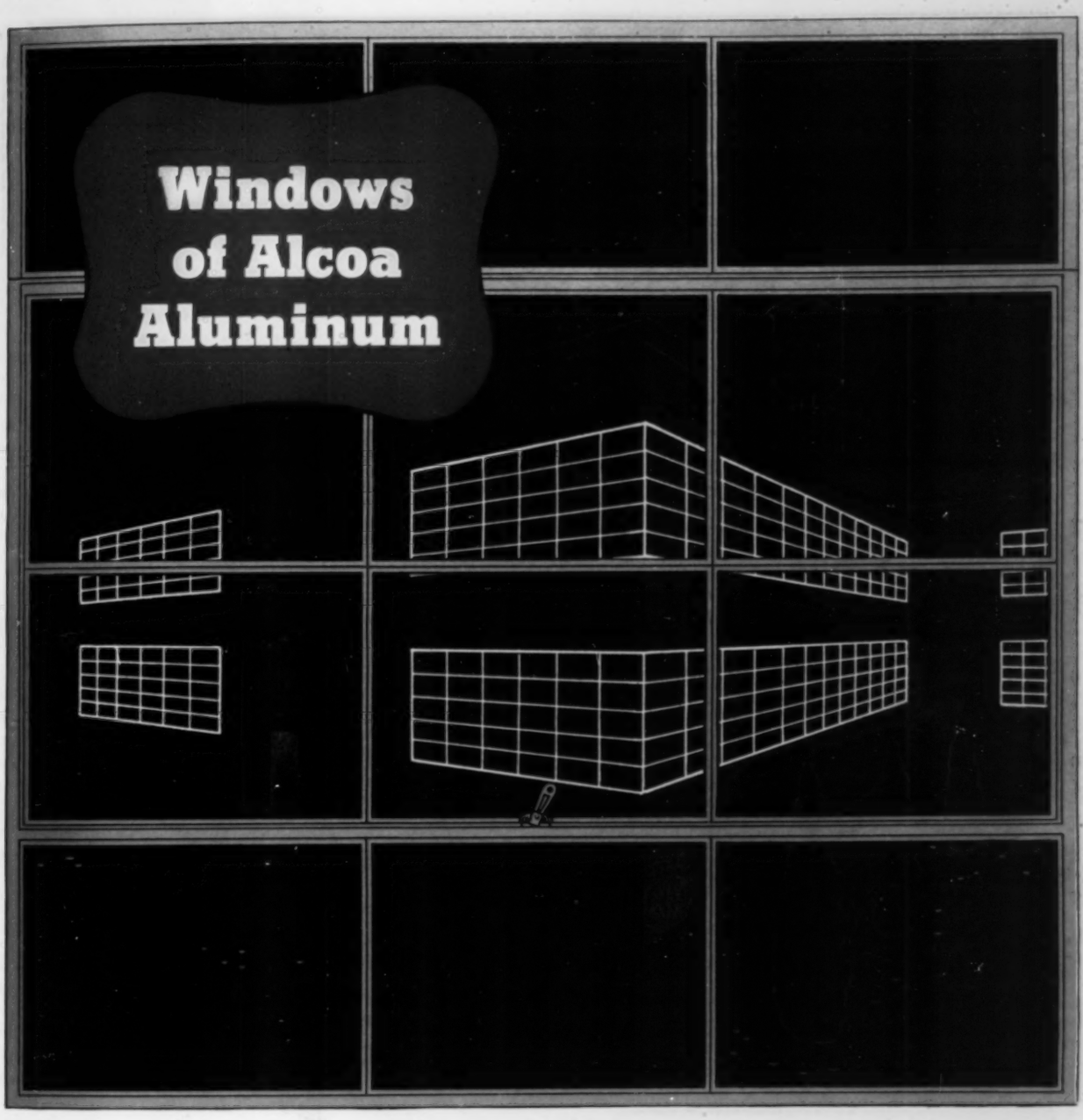
TESTED.....AND PROVED

Before any usAIRco blower goes to the shipping dock it must pass every test established by usAIRco design engineers. You can depend on usAIRco blowers to meet your needs with extra margins of performance.

Plus
Cooperative Engineering Counsel

Available to your air conditioning, heating or ventilating problems is the advice and counsel of the engineering staff of usAIRco. With a background of nearly twenty-five years, it is one of the most experienced in the industry. We invite you to use it freely and fully.

GOOD-LOOKING • LESS MAINTENANCE • QUICK INSTALLATION



Speed construction, reduce costs by including windows of Alcoa Aluminum in your specifications. Attractive, rustproof, they require no painting. Light in weight, delivered complete, they are easily handled with a minimum of labor.

Corrosion-resistant, they withstand industrial atmospheres; will give years of economical, trouble-free service.

For detailed information on windows of Alcoa Aluminum for every type of installation, write to ALUMINUM COMPANY OF AMERICA, 1867 Gulf Bldg., Pittsburgh 19, Pa. Sales offices in leading cities.

MORE people want MORE aluminum for MORE uses than ever

ALCOA FIRST IN ALUMINUM

IN EVERY COMMERCIAL FORM

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

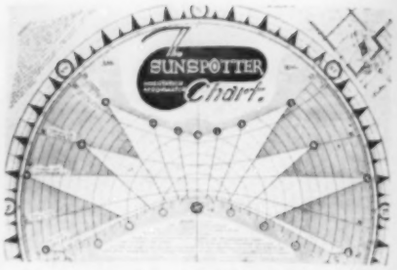
(*Continued from page 148*)

RADIATOR TEE

An adjustable tee, for use with one-pipe forced hot-water heating systems, offers a means of varying radiator temperatures in different rooms. The tee is installed in the single main to the supply branch of each upfeed radiator, and has a diverter that is adjusted by moving a small lever. The flow through the main is increased rather than throttled when branch flow is cut down. The diverter is not limited to two or three settings, but permits a full range of adjustments. When completely closed, sufficient circulation remains to prevent freezing. H. A. Thrush & Co., Peru, Ind.

ORIENTATION AID

Sunspotter Chart was designed by William Briggs, industrial designer, to provide a ready means of plotting the direction of shadows cast by the sun at different hours of the day throughout various months of the year. In this way, it is claimed, buildings can be oriented scientifically and quickly with reference to the sun exposure. Floor plans are superimposed on the chart, from which can be computed the amount of sunlight an interior will receive, depending upon window location and size, at different times of the day throughout the various months of the year. The standard chart is for 40° N. Lat., but other charts are being prepared for other latitudes. Williams Methods, Box 40, Redding, Conn.



Sunspotter Chart for plotting solar angles

INSULATION

Infra Insulation is made up of thin aluminum foil with an accordion-like inner construction providing dead air space; designed for laying in floors or on overhung ceilings, over steel or concrete beams, and for stapling between joists or studs. This insulation is reported to turn back about 95 per cent of invisible, infra-red heat rays, and is remarkably light in weight, 1000 sq. ft. weighing only about 60 lb. Infra Insulation, Inc., 10 Murray St., New York, N. Y.

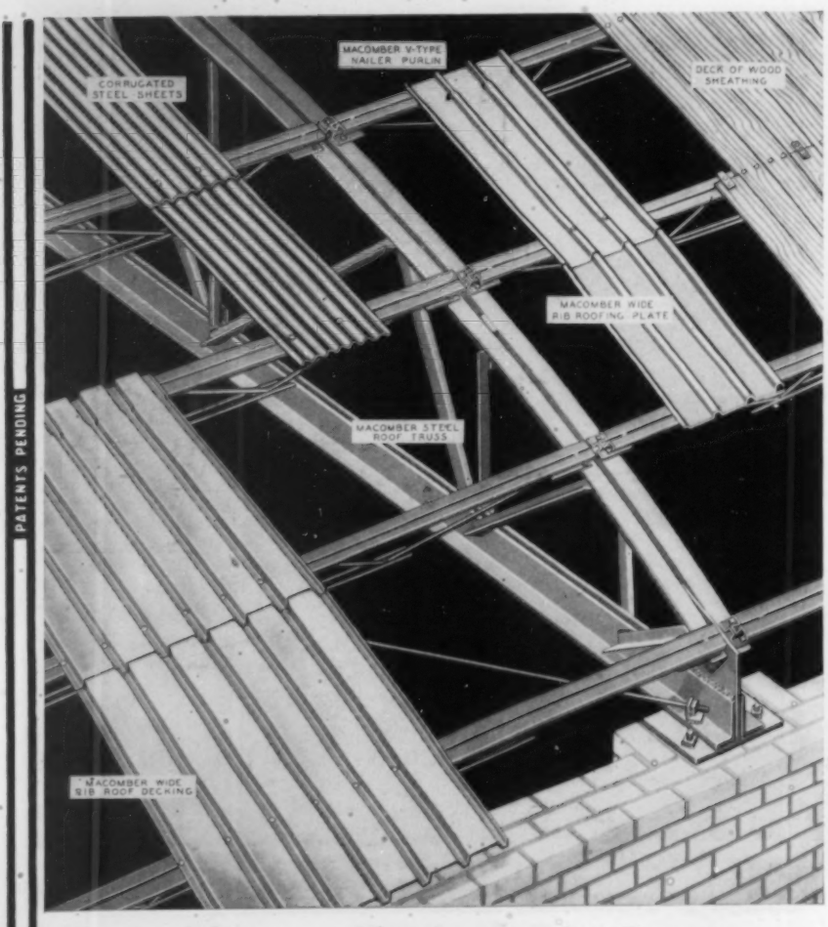
ALUMINUM TUBING

Production of one line of flexible aluminum tubing for connecting gas appliances to house piping has been resumed following discontinuance during the war. This tubing, supplied in both straight lengths and coils, ranges in outside diameter from ¼ in. to 1⅛ in., with varying wall thicknesses. Nominal weight is from 0.026 to 0.257 lb. per lineal ft., said to be about one-third that of similar copper tubing. Aluminum tubing should be used with aluminum compression-type fittings for connections. Reynolds Metals Co., 2500 S. Third St., Louisville 1, Ky.

FLASHING ANCHOR

A new line of reglets for the installation of counter flashing has been announced. These reglets are set within the concrete or masonry wall and provide a channel in which to anchor the flashing, after which the opening is sealed with lead rope calking. Fry Reglet Co., Dept. AR, 1725 N. Pennsylvania Ave., Bremerton, Wash.

(*Continued on page 152*)


MACOMBER V-TYPE NAILER PURLIN
CORRUGATED STEEL SHEETS
DECK OF WOOD SHEATHING
MACOMBER WIDE RIB ROOFING PLATE
MACOMBER STEEL ROOF TRUSS
MACOMBER WIDE RIB ROOF DECKING

PATENTS PENDING

For Better Structural Design –

For Fast, Economical Construction use . . .

Macomber All Steel V-Type Nailer Purlins. Shown above are various types of roof decking nailed directly to V Purlins. Specify them for short-cuts to occupancy from standard steel joist loading tables. This modern aid to building is also available in V-type Floor Joists and Studs. For further information write us.

MACOMBER

CANTON • OHIO

MEMBER OF THE STEEL JOIST INSTITUTE

Hotels need CLEAN, UNFAILING, ECONOMICAL HEAT

—and get it with Petro!

A hotel's reputation rests largely on service — including clean, unfailing heat at all times. Goodwill must not be lost by jeopardizing the comfort and health of guests. Nor can any but the most economical heating system be installed, for heating represents a significant item in operating costs.

Architects like Mr. Roth who have specialized in designing hotels agree that a Petro oil-fired system best meets exacting hotel needs. Cleanliness, the elimination of noise and dirt you can take for granted. Engineered simplicity results in continuous operating reliability. And Petro's sustained, over-all economy has long been a matter of record to cost-conscious architects, engineers and hotel executives.

Back of every Petro system — for *any* commercial, industrial or domestic use — stands an organization recognized as the nation's largest, most experienced, exclusive manufacturer of oil burning equipment. It's your assurance that a Petro incorporates every modern, tested improvement in automatic oil heating . . . lives up to *your* recommendation in full.

Many of America's finest hotels and apartments, including the Ritz Tower, St. Moritz, Dixie and Belmont Plaza Hotels in New York, and the St. George Hotel in Brooklyn, were designed by Emery Roth, senior member of the architectural firm of Emory Roth & Sons. Mr. Roth, an expert on hotel planning and design of many years' experience, has found Petro "thoroughly reliable and satisfactory."

INDUSTRIAL MODELS: No. 5 or No. 6 fuel oil; manual, semi-automatic or automatic operation; 8 sizes to 450 bhp. Thermal Viscosity preheating.

DOMESTIC MODELS: No. 3 or lighter oils; "conversion" and combination-unit types, 7 sizes. Patented "Tubular Atomization."

FULL DATA on Petro Industrial Burners are in catalog files of Sweet's and Domestic Engineering. Details on Petro Domestic Burners available in separate catalog. Copy of either sent gladly on request.

PETRO
REG. U. S. PAT. OFF.
cuts steam costs

PETROLEUM HEAT AND POWER CO. · *Makers of Good Oil Burning Equipment Since 1903* · *Stamford, Connecticut*

HOW TO SPECIFY
A FENCE THAT'S
BETTER IN
4 WAYS!
1 Deep-Driven Anchors hold the fence permanently erect and in line, yet can easily be relocated.
2 Square Frame Gates remain free from sagging and warping.
3 U-Bar Line Posts are rust-free, rigid and self-draining.
4 Square Terminal Posts improve strength, durability and appearance.

ANCHOR CHAIN LINK

FENCE rates a top spot on your "spec" list for features like these! To your clients, they mean extra years of all-out protection. And they are *your* assurance of specifying the best in fencing for factory, institution and home alike.

WRITE TODAY for your copy of "Anchor Protective Fences." It's both a catalog and specification manual for your A.I.A. File 14-K. Contains structural diagrams and specification tables, installation photos, many types and uses of Anchor Chain Link Fence. Just ask for Book No. 110. Address: ANCHOR POST FENCE DIV., Anchor Post Products, Inc., 6600 Eastern Ave.; Baltimore 24, Maryland.

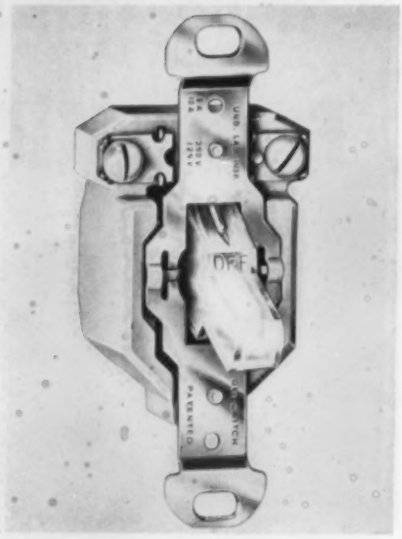
Anchor Fence

Nation-wide Sales and Erecting Service

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 150*)



Neon switch handle glows in the dark

GLOWING LIGHT SWITCH

A small neon light is incorporated in the switch handle of a new type of electric wall switch. When the switch is in the "off" position, it glows with a soft light to enable it to be found quickly in the dark. The switch is of the single-pole type and reportedly will fit any standard receptacle for this type of switch. The glow lamp is said to last two years and to use less than two cents worth of current per year. Roberts-Glo-Switch, 700 Jamaica Ave., Brooklyn 8, N. Y.

OIL FURNACES

Duo-Therm fuel oil furnaces never shut off completely during the heating season, in contrast to the "stop" and "start" type of furnace operation. It is claimed that this feature eliminates stratification or "cold 70" and provides a ready supply of heat whenever the thermostat drops a fraction of a degree below the desired temperature. There are 11 models with Btu capacities ranging from 50,000 to 108,000, and offering a choice of both gravity and blower types with either manual or thermostatic controls. Blowers are located either in a tailored rear compartment, or underneath the furnace to save space in small utility rooms. Duo-Therm Division, Motor Wheel Corp., Lansing, Mich.

DRAFTING TRAY

The *Wayne Drafting Tray* is designed as a handy receptacle for the work tools that usually clutter up drafting tables. The tray slides horizontally above the table on a mounting bar attached to the

(*Continued on page 154*)

VAPOR Condensation Child's Play Here

But

A 4-way Evil Within Walls

Moisture condensation on windows may be "child's play," but it can cause these costly evils within walls:

1. **Soggy, inefficient insulation**
2. **wall staining**
3. **paint peeling**
4. **structure rot**

A sure way to lick this 4-way evil of "in-wall" condensation is with a separate vapor barrier. Standard with architects everywhere is Bird Neponset Black Vapor Barrier. Applied on the warm side of insulation, Bird Neponset Black repels vapor, keeps insulation at peak efficiency, ends the other "in-wall" evils. Low cost—only about $20 to protect a $10,000 building. See Sweet's Architectural file, 9b-2. For sample, write Bird & Son, inc., 177 Wash. St., East Walpole, Mass.

VAPOR BARRIER
BIRD
OUTSIDE OF WALL
COLD SIDE
INSIDE OF WALL
WARM SIDE
Specifications: roll width: 36"; Sq. feet: 500; approximate wt.: 50 lbs. Asphalt Saturated, Coated both sides with glossy asphalt surface. Meets Federal Specifications UU-P-536 Grade B.
BREATHING
STUD

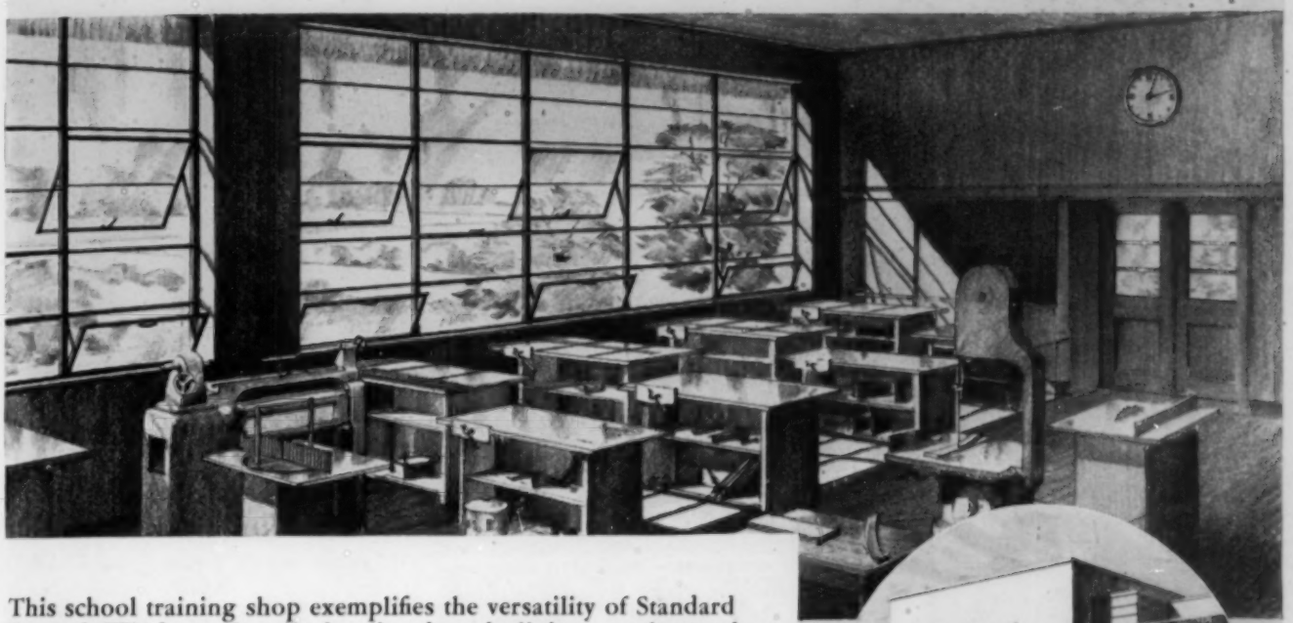
BIRD NEPONSET BLACK VAPOR BARRIER

BIRD & SON inc., E. WALPOLE, MASS.

CHICAGO NEW YORK SHREVEPORT

Specific Need... Standard Window

—A TYPICAL MONEY-SAVING SOLUTION WITH FENCRAFT



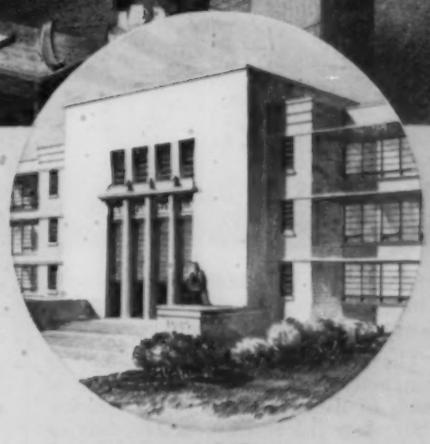
This school training shop exemplifies the versatility of Standard Fencraft Windows. It calls for abundant daylight . . . plenty of ventilation and good control of it. The use of medium size panes is recommended for easy, low-cost glass replacement. Sill vents that discourage leaning out of windows are desirable.

Standard Fencraft Windows provide these benefits—and more. Their trim beauty enhances both inside and outside appearance. They provide permanently easy operation, safe cleaning, lasting weather-tightness, firesafety and low maintenance costs.

Standardization means economy . . . in first cost and installation. Use of uniform installation details, plus co-ordination of window dimensions with those of wall materials, result in minimized installation costs.

All three types of Fencraft Windows—Casement, Projected or Combination—fit the same size openings. Window openings can be drawn into early plans, permitting later selection of window type without redrawing of plans.

Fencraft Windows are built by craftsmen of America's oldest and largest steel window manufacturer. Quality appearance highly recommends them for the finest of buildings. Standardization economies make them practical for buildings of all types. For details, see Sweet's (Section 16a-9). Or mail coupon.

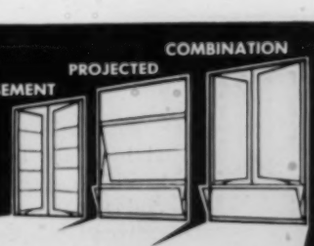


Suggestion:

In a school workshop, achieve large daylighting areas and excellent ventilation control with combined units of Fencraft Intermediate Projected Windows, such as Type 418 (illustrated).

Fenestra

CASEMENT PROJECTED COMBINATION



FENCRAFT INTERMEDIATE STEEL WINDOWS

Detroit Steel Products Company
Dept. AR-7
2252 East Grand Blvd.,
Detroit 11, Michigan

Please send me data on types and sizes of the new Fencraft family of Fenestra Windows:

Name_____

Company_____

Address_____

KINNEAR
Rolling Doors

GREATER EFFICIENCY from TOP to BOTTOM

OPENED OR CLOSED—or in action—Kinnear Rolling Doors offer greater efficiency "from top to bottom."

They open straight upward, coiling compactly above the doorway out of reach of damage by wind or vehicles. They clear the entire doorway, leaving all surrounding space fully usable at all times.

When closed, Kinnear Rolling Doors offer the extra protection of all-steel construction—against wind and storm damage . . . theft or intrusion . . . fire or explosion.

The rugged Kinnear Motor Operator can be added to any Kinnear Rolling Door for maximum speed and ease of operation, with push button controls at any desired point.

Kinnear Rolling Doors are built in any size, for new or old buildings. Write for new catalog.

The KINNEAR Manufacturing Co.
1860-80 Fields Avenue • Columbus 16, Ohio
1742 Yosemite Ave. • San Francisco 24, Calif.
Offices and Agents in all Principal Cities

Saving Ways in Doorways
KINNEAR
ROLLING DOORS

(*Continued from page 152*)

table front by four screws; it can be adjusted as to angle and height above the table. The tray has a crackle-lacquer finish, and mounting bars are cadmium-plated. A. Wayne Nunemaker, 103 S. Wells St., Chicago 6, Ill.

DISHWASHER

The *Kaiser* dishwasher operates without motors, wiring, belts and gears. Instead, it is powered by water pressure direct from the house hot-water line. Venturi jets, which multiply the normal water pressure four times, perform the dual operation of spraying the dishes and spinning the basket. After automatic rinsing, the lid is lifted to admit room air which dries the dishes while the basket continues to spin by its own momentum. There are two models: the DeLuxe, which has an hydraulic lift to raise the basket from the cabinet; and the Standard, without the hydraulic lift. Both models are furnished either in a white enameled cabinet or in a chassis to be built into the sink cabinet of the kitchen. The dishwasher requires only two connections — to the hot water supply and the drain. Kaiser Fleetwings, Inc., Dept. AR, Kaiser Bldg., Oakland, Calif.

HARDWARE

A number of hardware items for installation in theaters, restaurants, and night clubs have been announced. These include crowd-control posts and ropes, stair railings, push bars, and door grips. Hupp Metal Works Co., 1123 Broadway, Room 307, New York 10, N. Y.

WATERPROOF FINISH COAT

A single brush coat of *Agraseal* is said to do a protective and sealing job on porous masonry surfaces. For more intense color value and smoother finish, a second coat may be applied. Application is by ordinary scrub brush or by paint brush. Agraseal is made in white, ivory cream, light buff, natural stone gray, yellow, and light green. Tamms Silica Co., 228 N. LaSalle St., Chicago 1.

DOOR CLOSER

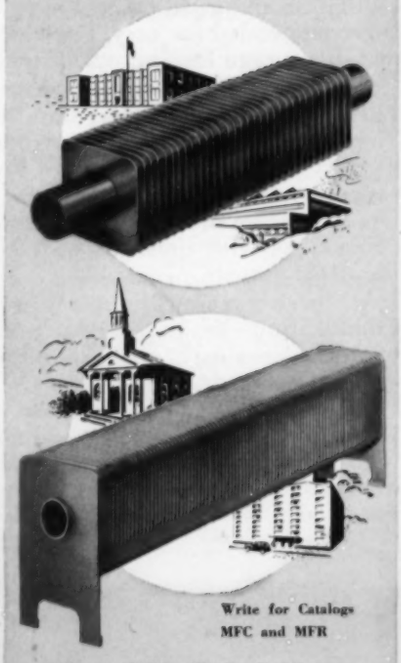
The *Hydro-Hinge* automatic door closer has spring and hydraulic units completely concealed within a specially designed butt hinge, and is installed the same way as the conventional butt hinge. It can be adjusted for varying speeds, positive latching, or silent closing. Bakewell Products, Dept. AR, 1201 Rio Vista Ave., Los Angeles 23.

Immediate Delivery

MAGNA-Therm
UNIT HEATERS

Order NOW for immediate delivery. Don't risk Fall shortages. Write for Catalog MTH

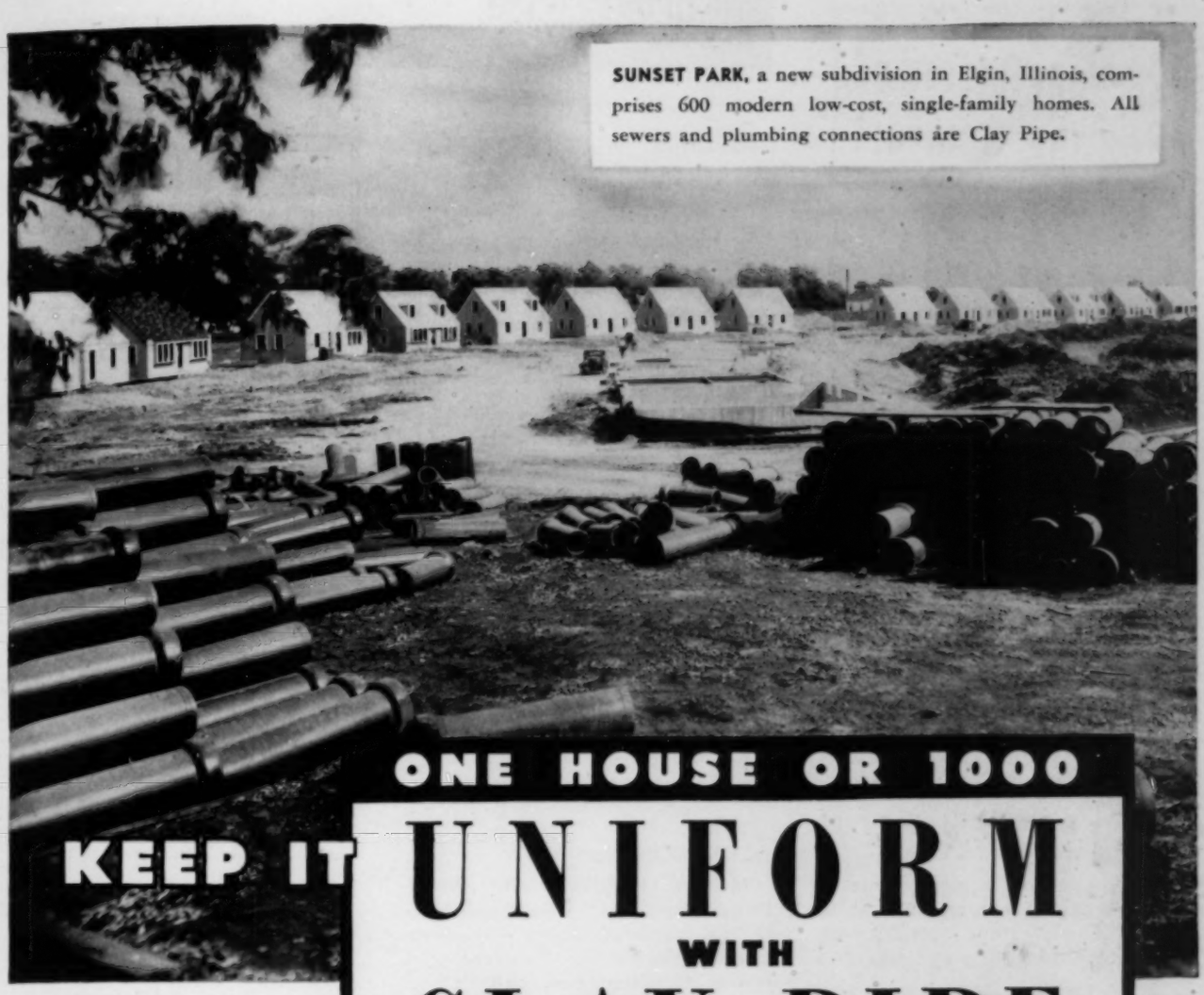
MAGNA-Fin
CONVECTORS AND RADIATORS



Write for Catalogs MFC and MFR

Mfrs. of Fin Tube Surfaces
Inquiries invited

THE Rittling CORP.
1392-1398 NIAGARA ST. BUFFALO 13, N. Y.



SUNSET PARK, a new subdivision in Elgin, Illinois, comprises 600 modern low-cost, single-family homes. All sewers and plumbing connections are Clay Pipe.

ONE HOUSE OR 1000

KEEP IT UNIFORM

WITH

CLAY PIPE

SEWER connections are an important part of the over-all sanitary system, and deserve to be made of the same high quality of materials as the main lines. 89% of all sewer mains are Clay Pipe!* The advantages of Clay Pipe are responsible for its preference by leading sanitary engineers. Nine times as much Clay Pipe as any other material is used by American municipalities. The advantages of Clay Pipe for sewer systems make it the best material for connections.

NATIONAL CLAY PIPE MANUFACTURERS, INC.

111 W. Washington St., Chicago 2, Ill.
522 First National Bank Bldg., Atlanta 3, Ga.
1105 Huntington Bank Bldg., Columbus 15, Ohio
571 Chamber of Commerce Bldg., Los Angeles 15, Calif.

CLAY PIPE

C-347-2

* **CLAY PIPE** keeps entire sewer systems uniform. A recent nationwide survey proves that Clay Pipe is the choice for nine out of ten sewers. Engineers in 123 cities report that of 37,219 miles of sewers in their communities, 33,168 (89%) are Clay Pipe.

CLAY PIPE NEVER WEARS OUT!